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INSTRUMENTAL LEARNING AND CONFORMITY
BEHAVIOUR AS A FUNCTION OF
DOGMATISM, MISINFORMATION AND
STATUS OF INFORMATION SOURCE

by

J. M. Harris

B.A., University of Windsor, 1966

A Thesis

Submitted to the Faculty of Graduate Studies through
the Department of Psychology in Partial Fulfillment
of the Requirements of the Degree of
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Windsor

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ABSTRACT

This study was an effort to investigate the effect of dogmatism, misinformation, and status of information source on conformity behaviour and instrumental learning. The theories of Rokeach (1960) generated the following hypotheses:

I) Learning varies inversely as a function of dogmatism, status, and misinformation.

II) Conformity behaviour varies directly as a function of dogmatism and status and inversely as a function of misinformation.

The initial sample consisted of 322 Ss who had been administered the Rokeach Dogmatism Scale. The experimental sample was composed of 30 high (H), and 30 low (L) dogmatic Ss who were selected from the high and low segments of the distribution of dogmatism scores. The 30 high and low dogmatic Ss were each divided further into two groups of 15 Ss each. One group of 15 Ss underwent the experimental task with a bogus subject defined as high in status, while the other group was exposed to the experiment with a low status confederate. Each of the 4 groups of 15 Ss was further subdivided into 3 groups of 5 Ss each. Each of these three groups received task information that was incorrect 15%, 50% and 85% of the time respectively. All Ss

were given a non-verbal paired-associate learning task during which they had a choice of mimicking the bogus Ss responses or responding independently. The trial at which Ss realized that they could not achieve perfect learning by conforming was defined as the analytic stage. A measure of learning was taken after this stage.

The results indicated that in an instrumental learning task, learning varies inversely as a function of dogmatism, but only inversely as a function of status when total trials to 100% learning is considered. That learning varies inversely as a function of misinformation was also only partially confirmed. The 15% misinformation group learned better, in general, than the other two misinformation groups, but not over all of the trials to successive criteria.

Conformity behaviour varies directly as a function of dogmatism and information source status. The 15% misinformation group conformed more than the other two misinformation groups which did not differ significantly between themselves. The first trial at which conformity ceased entirely was defined as the analytic stage. High dogmatics took longer to reach it than did the low dogmatics.

These findings were discussed in terms of the theories of Rokeach (1960), Long and Ziller (1965), and Crutchfield (1955). Finally, remarks were made concerning the adequacy of the D Scale as a research instrument in the light of past research.

PREFACE

The author has constructed the present design with the view in mind that its variables are in part related to the social and psychological climate of the times. Independent thought in a conformist world is becoming increasingly discouraged. The population explosion brings encroachments on the privacy necessary for freedom of expression. The cold war encourages individuals to alienate themselves from a variety of transcultural influences and to align themselves with partisan groups of inane unthinking masses. The growth of mass communication along with the latest psychological tools makes it possible to homogenize the thinking of the multitude and to even convince the people that they can think independently. The sheer increase of information input from a great variety of sources and the upsurge in the number of social roles makes it biologically impossible to be in touch with everything and still think effectively on anything. Ideas are no sooner born than they reach obsolescence, even before independent conclusions can be drawn.

The new psychological methods for human engineering - electrical stimulation, creation of artificial environments, biochemical control, "shaping" behaviour through programmed texts, teaching machines and B. F. Skinner have

a remarkable potential for both destroying independent thinking and promoting it. There is a race between the destructive use of behaviour control, which implies thought control, and the constructive use of psychological innovations. The author envisages the research at hand to be a minute but hopefully significant contribution to constructive application of psychological inquiry.

The present research is limited in scope. However, it is desired that it will be one of many studies in the area of conformity versus independent thinking that will eventually result in the passing of psychological information relevant to the extant social milieu from the hands of the few into the arms of the many. An informed public is a democratic public able to judge critically in an era of psychic persuasion.

The author wishes to express his appreciation to his mentor, D. H. Richardson, who has sustained this research for a period of almost one year. A patient guide and a seeker of possibilities for the highest quality research, he has inspired the author to continue in the field of social psychological inquiry. A special debt of gratitude is due to Dr. A. A. Smith a professor in experimental psychology who contributed from his vast resources to assist in making this research amenable to statistical analysis. Appreciation is also felt for the highly relevant comments of Dr. Farrell of the History department of the University of Windsor.

Other collaborators consisted of Mr. Herbert Ladd who gave generously of his time during the experimental sessions. The authors wife, Isabelle, is to be thanked for her time consuming efforts in technical assistance and for her tolerant attitude toward a stack of papers distributed randomly about the house in diarretic proportions. Finally, appreciation is expressed to the introductory psychology class of 1966-67 at the University of Windsor which made this research a reality.

TABLE OF CONTENTS

	Page
PREFACE	iv
LIST OF TABLES	viii
LIST OF FIGURES	xi
Chapter	
I INTRODUCTION	1
Related Research	2
Purpose of Study (Conformity)	9
Purpose of Study (Learning)	14
II METHODOLOGY AND PROCEDURE	16
Experimental Sample	16
Testing Materials	17
Experimental Apparatus	18
Procedure	19
III PRESENTATION AND ANALYSIS OF RESULTS	27
Measures of Learning	27
Measures of Conformity	42
IV DISCUSSION OF THE RESULTS	65
V SUMMARY AND CONCLUSION	86
APPENDIX A Dogmatism Scale, Lie Scale and Buffer Items	90
APPENDIX B Instructions for Experimental Task	100
APPENDIX C Random Order of Presentation of White Lights	102
APPENDIX D White Light - Response Button Connections	103
BIBLIOGRAPHY	105
VITA AUCTORIS	108

LIST OF TABLES

Table		Page
1	Proposed Levels of Correctness with Two Levels of Status Within High and Low Dogmatic Groups (N=60)	26
2	Analysis of Variance on the Total Number of Trials Required to Attain Perfect Learning for each Level of Dogmatism, Misinformation and Status (N=60).	29
3	Analysis of Variance for the Simple Effects of Dogmatism and Status on the Total Number of Trials Required to Reach 100% Learning (N=60)	31
4	Analysis of Variance on the Total Number of Trials Required to Attain Perfect Learning Subsequent to the Cessation of Conformity Behaviour for each Level of Dogmatism, Misinformation and Status (N=60)	32
5	Analysis of Variance on the Total Number of Trials Taken to Reach Successive Criteria of Mastery of Stimulus Light - Response Button Connections for each Level of Dogmatism, Misinformation, and Status (N=60)	35
6	Analysis of Variance for the Simple Effects of Dogmatism Over the Total Number of Trials Taken to Reach Successive Criteria of Mastery (N=60)	36
7	Analysis of Variance for the Simple Effects of Status Over the Total Number of Trials Taken to Reach Successive Criteria of Mastery (N=60)	37

Table		Page
8	Analysis of Variance for the Simple Effects of Misinformation Over the Total Number of Trials Taken to Reach Successive Criteria (N=60)	38
9	Analysis of Variance on the Total Number of Trials Required to Reach the Point of Complete and Final Cessation of Conformity Responses for Each Level of Dogmatism, Misinformation and Status (N=60)	44
10	Analysis of Variance for the Simple Effects of Two Levels of Dogmatism and Two Levels of Status on the Total Number of Trials Required to Reach 0% Conformity Behaviour (N=60)	46
11	Analysis of Variance for the Simple Effects of Two Levels of Dogmatism and Three Levels of Misinformation on the Total Number of Trials Required to Reach 0% Conformity Behaviour (N=60)	47
12	Analysis of Variance on the Total Number of Trials Taken to Reach Successive Criteria of Fewer Conformity Responses for each Level of Dogmatism, Misinformation and Status (N=60)	48
13	Analysis of Variance for the Simple Effects of Two Levels of Status X Two Levels of Dogmatism on the Total Number of Trials Over Successive Criteria (N=60)	51
14	Analysis of Variance for the Simple Effects of Three Levels of Misinformation X Two Levels of Dogmatism on the Total Number of Trials Over Successive Criteria (N=60)	53
15	Analysis of Variance for the Simple Effects of the Two Levels of Status X the Three Levels of Misinformation on the Total Number of Trials Over Successive Criteria (N=60)	55

Table		Page
16	Total Number of Trials per Successive Criteria of Conformity Responses (6 to 0) for all Subjects (N=60)	57
17	Analysis of Variance for the Simple Effects of Dogmatism Over the Total Number of Trials Taken to Reach Successive Criteria of Fewer Conformity Responses (N=60)	60
18	Analysis of Variance for the Simple Effects of Status Over the Total Number of Trials Taken to Reach Successive Criteria of Fewer Conformity Responses (N=60)	61
19	Analysis of Variance for the Simple Effects of Misinformation Over the Total Number of Trials Taken to Reach Successive Criteria of Fewer Conformity Responses (N=60)	62

LIST OF FIGURES

Figure		Page
1	The Elements of an Individual Subject Panel Employed in this Study	20
2	Mean Number of Trials to 100% Learning for Two Levels of Status and Two Levels of Dogmatism (N=60)	30
3	Learning Curves for High and Low Dogmatism (N=60)	39
4	Learning Curves for High and Low Status (N=60)	40
5	Learning Curves for 15%, 50% and 85% Misinformation (N=60)	41
6	Mean Number of Trials Required to Reach Complete and Final Cessation of Conformity Responses for Two Levels of Status and Two Levels of Dogmatism (N=60)	45
7	Mean Number of Trials Required to Reach Complete and Final Cessation of Conformity Responses for Three Levels of Misinformation at Two Levels of Dogmatism and Both Levels of Dogmatism Combined (N=60)	45
8	Mean Conformity Responses for Two Levels of Status at Two Levels of Dogmatism (N=60)	52
9	Mean Conformity Responses for Three Levels of Misinformation at Two Levels of Dogmatism (N=60)	54
10	Mean Conformity Responses for Three Levels of Misinformation at Two Levels of Dogmatism (N=60)	56

Figure		Page
11	The Mean Number of Trials Taken to Reach Successive Criteria of Fewer Conformity Responses for the Two Levels of Dogmatism (N=60)	63
12	The Mean Number of Trials Taken to Reach Successive Criteria of Fewer Conformity Responses for the Two Levels of Status (N=60)	63
13	The Mean Number of Trials Taken to Reach Successive Criteria of Fewer Conformity Responses for the Three Levels of Misinformation (N=60)	64

CHAPTER I

INTRODUCTION

The social ethic finds expression through the mass media, where man is confronted with the overwhelming influx of suggestion exuding from omnipresent authorities, peers, advertisers and propagandists of every ilk. Identification of individuals with the system is socially rewarded while deviation from it is not rewarded and often severely punished with social sanctions. The present effort may be construed as an attempt to reproduce a social situation analogous to that which is experienced by most people from day to day.

The relevant social implications of the present research do not concern themselves with why mass manipulation is felt necessary for those who do the manipulating, but with how people behave when exposed to it, given definite personality predispositions.

The assumption here, is that people with varying personality traits will behave differently under certain social conditions. The point is stated succinctly in The Authoritarian Personality (Adorno, Frenkel-Brunswick, Levinson, and Sanford 1950) and serves to establish the context for practical application of research in this area:

It seems apparent that any attempt to appraise the chances of fascist triumph in America must reckon with the potential existing in the character of the people. Here lies not only the susceptibility to antidemocratic propaganda but the most dependable sources of resistance to it. (1950, p. 10).

Background of Related Research

Rokeach (1960) has collated and described the research on the nature of open and closed belief and disbelief systems performed from 1951 to 1960. Rokeach approaches his most proximal definition of a belief in a quotation he took from the philosopher of religion, Trueblood (1942, p. 24):

Every proposition becomes in fact a judgment, and man is a creature greatly concerned with his own judgments. We take our judgments seriously and, foolish as we are, we are deeply interested in the correctness of our judgments.

Rokeach (1960, p. 32) adds: "...every person also has countless other beliefs that he cannot verbalize." Beliefs are inferred from a person's verbal and non-verbal behaviour. The total belief-disbelief system is an "organization of verbal and non-verbal, implicit and explicit beliefs, sets, or expectancies." (Rokeach, 1960, p. 32). Dogmatism as defined by Rokeach (1954, p. 195) is "a) a relatively closed cognitive organization of beliefs and disbeliefs about reality, (b) organized around a central set of beliefs about authority which, in turn, (c) provide a framework for patterns of intolerance and qualified tolerance for others."

The cognitive space is, therefore, organized into a belief and disbelief system both of which have subsystems that are similar in varying degrees. The belief-disbelief systems are further organized along the belief-disbelief dimension, the central-peripheral dimension and the time-perspective continuum.

The belief-disbelief dimension points to the degree to which a cognitive system is closed. It is closed to the extent to which the beliefs within and between each system or subsystem have the following characteristics: isolation between beliefs, systems or subsystems; differentiation of the belief system relative to the disbelief system; degree of differentiation within the disbelief system and degree of interdependence of peripheral beliefs. The central-peripheral dimension denotes the extent to which a cognitive system is open only to information from an "authoritative" source or the degree to which information is judged on its own merits. The time-perspective dimension refers to the relationship among beliefs about the past, present, and future. The continuum runs from a narrow to broad orientation with respect to time and represents the extent to which past present and future are emphasized in the belief-disbelief system and perceived as continuous and integrated.

In line with the foregoing theory, Rokeach (1960), devised the Dogmatism Scale (D Scale) to measure individual differences in closedness of belief systems. He emphasized

the D Scale as a measure of general authoritarianism or general intolerance. These terms were used to designate the measurement of "total cognitive organizations of ideas and beliefs which have been organized into closed ideological systems." (Rokeach, 1954, p. 197). The emphasis is on the structure of belief and disbelief systems rather than the content. Rokeach (1960) delineates hypotheses underlying each item and the relationships between or among items on the D Scale and their supposed connection with general authoritarianism.

An emphasis on specific ethnic prejudice, an understandable result of the social conditions generated in the Third Reich, began with a scale for measuring ethnocentrism. The ethnocentrism scale (E Scale) (Levinson 1949) was constructed and was studied in relation to the anti-Semitism scale (A-S Scale) developed by Levinson and Sanford (1944). Both the E and the A-S scales made reference to specific ethnic groups. The F Scale (potential fascist) (Adorno, Fenkel-Brunswick, Levinson & Sanford, 1950) was in part an effort to withdraw from such specificity, thus making it less easy for a subject to see through the instrument as being designed to measure prejudice. The potential fascist scale was a result of an attempt to draw out from the A-S and the E Scales items that could point out a general psychological orientation of the generally prejudiced individual. Since the F Scale

was found to correlate highly with the E and A-S scales (Adorno et al. 1950, Himmelhock 1950, Plant 1960, Rokeach 1960) it also is a measure of ethnic prejudice. The D Scale, therefore, sprung from the need for research in this area to release itself from the restrictions of measuring right authoritarianism. Christie and Cook (1958) Shils (1954) and Rokeach (1956) emphasize that the F Scale fails to measure general authoritarianism independently of right-wing ideology. Even liberal ideologies are often embraced with a most authoritarian disposition.

Another criticism of the F Scale is that no empirical support was found in The Authoritarian Personality (Adorno et al., 1950) for the hypothetical clusters underlying the F Scale items, and there is no congruence of the factors uncovered in factor analysis studies (Adorno et al., 1950; Christie and Garcia 1951; Aumack 1955; Rokeach 1956).

Several studies support the view that the D Scale items tap the theoretical construct of general authoritarianism. Factorial studies of the D Scale performed by Rokeach and Fruchter (1956) and Fruchter, Rokeach and Novak (1958) employing two different populations of college students were reciprocally supportive in that dogmatism is independent of the liberalism-conservatism dimension and that dogmatism is factorially descriminable from authoritarianism, ethnocentrism, and rigidity. Rokeach (1956), in another factor analytic study, points out again that dogmatism, as measured

by the D Scale, represents general authoritarianism as contrasted with right-wing authoritarianism. Plant (1960) replicated this study by Rokeach (1956) by intercorrelating D, E, and F Scales and found that the D Scale is less loaded with prejudice than the F Scale. The research suggests that the D Scale is even a better measure of general authoritarianism than the F Scale is of fascist ideology.

LaScuito and Hartley (1963) lend support to the belief-disbelief dimension in an experiment using the D Scale as administered to Jewish and Catholic groups. The task was a stereoscopic one where Jewish and Catholic symbols, words and pictures were exposed in conflict, therefore calling for a binocular resolution by Ss. There was a significant correlation between open mindedness and a tendency to see material associated with the other religion.

The central-peripheral dimension gained support with Zagona and Zurcher (1964) in a group pressure situation where leader orientation seemed to be the quality of high dogmatic Ss. High dogmatics preferred structured topics, instructional situations, are uncreative, routine, conventional and are disturbed by out of role behaviour of the authority figure. The high scorers were preoccupied with the leader-follower dimension and spent less time in discussion than low dogmatics. Restle, Andrews and Rokeach (1964) with respect to the same dimension, found that closed Ss depend passively on an authority whereas open Ss seek an

underlying principle when problem solving. Powell (1962) also gives support to the central-peripheral construct. Korn and Gidden (1964), Ehrlich (1961) and Lefcourt (1962) attribute additional validity to the dogmatism construct as a whole.

Vidulich (1958) found a split half reliability coefficient of .76 with 197 introductory psychology students using a signed scale with no buffer items. Vidulich remarked that his coefficient of correlation was in the area of other coefficients revealed in other studies. The present study is intended, in part, to be an extension of the validating process since the assumption is that the constructs underlying the D Scale are of universal situation significance.

Problems of dogmatism, status and correctness of information are reflected in several studies dealing with conformity as a dependent variable. Vidulich and Kaiman (1961) employed an autokinetic situation where judgments of the direction of a light were to be reported by Ss contingent on the judgment of a confederate defined as high or low in status. They found that conformity was a function of dogmatism and information source status. The interaction of the two independent variables was found to determine conformity behaviour to an even greater extent than either variable taken alone. Support for the Rokeach construct is evident with respect to the ability of Ss to act on the intrinsic merit of information rather than to identify the information with its source.

Parallel to these findings on the central-peripheral continuum are the results of Luchins and Luchins (1961). They discovered that in a perceptual task where judgments were incorrectly made about the stimulus by the combined force of authority and majority, the Ss made very few correct responses.

When the majority and authority operated in opposing directions, the authority tended to have the stronger influence. When the majority and the authority were both in accord with the objective evidence their combined effects were not as great (in terms of yielding correct responses) as when only the authority supported the evidence while only the majority was opposed to it. (Luchins and Luchins 1961, p. 316).

McDavid (1959) studied situational determinants of conformity and distinguished, as did Rokeach (1960), between source-oriented Ss and message-oriented individuals. He found that source-oriented Ss were more susceptible to group pressures than message-oriented persons, although the message-oriented group compromised between yielding and responding independently. McDavid's interpretation was that the message-oriented group conformed out of "personal utility rather than to avoid being different from the group." (McDavid 1959, p. 245). In another group conformity setting, DiVesta (1959) found that conformity decreased as a function of the increase in the number of errors committed by the majority.

In the same experimental vein, Cervin (1964) reports an experiment performed by Crummer, McLean and Visscher using the General Learning Apparatus (G.L.A.)

(Cervin, Smith and Kabisch 1965). The researchers varied three levels of model-group prestige level (0% 50% 100% correct responses) and three levels of experimental subject training (0% 50% 100% correct responses) with average proportions of conforming responses. It was found that the higher the prestige level and the lower the amount of experimental training in the learning task, the greater were the number of conformity responses. The present investigation employs a similar independent variable of 15%, 50% and 85% misinformation emanating from two prestige levels, high and low.

A study performed by Crutchfield (1955) using a modified Asch technique reports results congruent with the other studies concerning the relationship of group influence and authority upon conformity behaviour when the task is either structured or ambiguous. Crutchfield and other researchers have been concerned with group reification. His interest was in the supposed over evaluation of an authority and individual peer figure as indicated by conformity behaviour.

Present Problem - Conformity Variable

The research suggests the conformity behaviour is a generalized disposition related to high dogmatism so that if Ss yield to the authority represented either as an individual or group in one task, they will yield in other tasks as well. The presentation of varying amounts of

reward for conformity (correctness of information source) is expected to create varying degrees of dissonance that will yield decreasing conformity responses as reward for such responses decreases.

In the light of the assertions of Rokeach (1960) and the findings of previous research concerning the variables considered here, the experimental hypotheses are as follows:

In an instrumental learning task

- I Conformity behaviour varies directly as a function of dogmatism.
- II Conformity behaviour varies directly as a function of status of information source.
- III Conformity behaviour varies inversely as a function of misinformation.

Research dealing with the independent variables here discussed and their relatedness to learning has been sparse. Rokeach (1960) theorizes that the D Scale may be related to learning. He asserts that "the more closed a person's belief system, as measured by the D Scale, the more resistance he will put up to forming new belief systems." (Rokeach 1960, p. 181). Ehrlich (1961) in support of this hypothesis using a classroom learning task, found that dogmatism is inversely related to learning. Christensen (1963) replicated Ehrlich's study but failed to confirm Rokeach's hypothesis. Both Ehrlich and Christensen used quasi-experimental procedures in that adequate standardized measures and tasks were not employed.

The forming of new belief systems entails the ability to synthesize new bits of information into an organized whole. Old beliefs must often first be modified or even eliminated entirely since new beliefs are often contradictory to the old ones. Rokeach termed this process the analytic stage. If this is the case, and no modification takes place, there can be no synthesis made or new system formed. Rokeach, McGoveney and Denney (1955) acknowledge in their analysis of Ss behaviour in solving the Doodlebug problem, that there is a stage where a person must first eradicate three old beliefs before Ss can recognize that there is a possibility of new beliefs. If this stage is not surpassed there can be no synthesizing of new beliefs. Rokeach et al. (1955) suggest that there is no difference between high and low dogmatic Ss in their ability to eliminate old beliefs, but that the difference lies between their ability to synthesize new beliefs.

Ridgley (1965), after administering the D Scale, subjected 20 high and 20 low dogmatics to a learning task. In the experimental learning task, Ss were required to learn the correct one to one connection between response buttons and white lights. (See Figure 1). This procedure was not unlike the one in the present study in which the same apparatus was used. Ss indicated their choice by depressing one of the buttons and received a green light only if they were correct. Half way through the experimental session, the white light - response button pairs, were changed

to different associations without Ss knowledge. The time taken for S to realize that the programme had been changed was defined as the analytic stage after Rokeach (1960). In the present experiment, the analytic stage will be the point at which S realizes that he cannot learn the programme completely by conforming (elimination of old belief) and that he must respond independently if he is to reach the criterion of perfect performance (taking on of new belief).

Ridgley (1966) and Rokeach (1960) reported contradictory results concerning the relative time taken by high and low dogmatics in reaching the analytic stage. Rokeach asserted that there was no difference while Ridgley found that high dogmatics reach the analytic stage earlier than lows. Ridgley's interpretation was that E was the sole determiner of task success and so high dogmatics were more suspicious of change. This interpretation is in agreement with the postulate of Rokeach that high dogmatics are highly paranoiac. The present investigation will be an attempt to shed some light on these contradictory findings.

In addition, Ridgley found that the learning of the high dogmatics was inhibited in comparison to lows after the change of programme. In the event that there will be differential conformity behaviour, the present study is in part an effort to investigate the difference in learning between high and low dogmatics after conformity has ceased. This is tantamount to investigating the differential effects on highs and lows of the synthetic stage.

The learning task in the present investigation may also be viewed as a study for the search of predecisional information among high and low dogmatic Ss. Long and Ziller (1965) found that the non dogmatic individuals tended to delay decision making until enough information was available. Dogmatism was interpreted as a defense mechanism which interferes with the processing of predecisional information. The hypotheses for both dependent variables of learning and conformity, are designed to incorporate the feasibility of these interpretations in the present investigation.

Adams and Vidulich (1962) found that high dogmatic Ss as measured by the D Scale, were inferior to low dogmatics in the learning of belief-congruent and belief-incongruent paired associate lists i.e. ball-round, ball-square. The results suggest that high dogmatics cannot abide beliefs that are incongruent with their own, but find it easier to entertain beliefs that are similar to their already accepted ones. The differences in this study reflect that high dogmatic Ss would have more trouble eliminating or modifying old beliefs, since contradictory associations were not learned as well as non-contradictory ones. LaScuito and Hartley (1963) in their binocular resolution task report results that also contradict Rokeach's hypothesis with respect to the equal ability of high and low dogmatics to dispel old beliefs.

Present Problem - Learning Variable

The present investigation is in part concerned with the point in time at which Ss decide that they cannot learn the task completely by conforming. When such a decision is made by Ss, they will have eliminated the old belief that completely correct responses can be achieved by conforming, and will be free to approach the new belief that they can learn completely on their own. Both conformity and learning measures should reflect this cognitive event since 100% learning requires independent responding.

Pertinent research varying dogmatism with learning is contradictory, and research varying status with learning is absent. It is expected that the amount of learning that has taken place during the period of conformity will be reflected in the overall measurement of this dependent variable since some transfer of correct and incorrect associations may be carried into the post analytic stage depending on the degree of misinformation exuding from the status figures. The greater the misinformation, the more negative transfer is expected and therefore the time taken to learn is increased even though conformity behaviour may be less extensive among the groups exposed to a higher percentage of misinformation. Subjects who conform to the status figure may be expected to receive more negative transfer and less practice in responding independently (no status figure will ever be 100% correct), therefore, Ss who

are exposed to high status bogus will require a longer time to learn even though positive transfer is likely to be present.

CHAPTER II
METHODOLOGY AND PROCEDURE
Experimental Sample

The Dogmatism Scale (Rokeach 1960) was administered in a regular class session to an initial sample of 377 male and female introductory psychology students enrolled at the University of Windsor during the 1966-67 academic year. Ss ranged in age from 19 to 55 with a median age of 21. Males and females were randomized in this sample since the vast number of Ss required in a limited subject pool precluded the use of sex as an independent variable. Homogeneity of the sample was increased by the exclusion of all individuals who were not Canadian or American born Caucasians.

A final sample of 30 high (H), and 30 low (L) dogmatic Ss was selected from the high, and low segments distribution of dogmatism scores. These groups were further subdivided into 12 groups of 5 Ss each in deference to the experimental procedure. (This final sample of 60 Ss ranged in age from 18 to 25 with a median age of 20.) A retest under identical administration conditions after a time interval of 3 months yielded a reliability coefficient.

Testing Materials

The D Scale Form E (Rokeach 1960) is a 40 item Likert type scale normally administered under conditions of anonymity. Since appropriate information such as date of birth was not available in the class rosters, Ss were required to place their names on questionnaires. Ss were also required to state their race, religion, sex and political affiliation in order to provide valuable intelligence for possible future interpretation.

The items of the D scale were interspersed with 92 select items of the Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway and McKineley 1951) in order to disguise the purpose of the D Scale. Among these 92 items were the 20 randomly dispersed L scale items of the MMPI that were unlikely to be answered truthfully in the disagreement direction. Exclusion of Ss from the experiment for socially desirable responses on the L Scale was done according to the norms set down by Hathaway and McKineley (1951). The D Scale and the additional interspersed items as well as the instructions for administration are presented in Appendix A in the form in which they were originally administered. The complete questionnaire contained a total of 120 items which approximates the minimum number recommended by Rokeach (1960), and took from thirty to forty minutes to complete.

As advised by Korn and Giddan (1964), only the

frequency of agree responses was used as a measure of dogmatism for each subject. Individual scores, therefore, ranged from 0 to 40. The higher scores indicate higher levels of dogmatism.

Experimental Apparatus

The apparatus was a modification of the original General Learning Apparatus (G.L.A.) which is fully discussed by Cervin, Smith and Kabisch (1965). There were six subject panels arranged in a hexagon. The panels were partitioned from one another by removable wooden slabs that eliminated visual contact among subjects. Of these panels, only 3 of them of the type diagrammatically displayed in Figure 1. were employed as subject panels in this experiment. A fourth nonfunctional panel, panel E, was occupied by a confederate of E who sat on a high stool so that all subjects could observe him.

The panels have horizontal rows of six white stimulus lights, six orange cue lights and six response buttons, all numbered 1 to 6 from left to right. One green positive reinforcement light located in the upper left quarter of the panel was employed. The remainder of the lights and buttons on the panels were inactive for this experiment.

The master panel which controlled the subject panels was mounted vertically and was positioned in a sound-proof room separated from the subject room by a wall containing a small window. The master panel was programmed for an

operant conditioning procedure with the onset and offset of the lights, the interstimulus intervals and inter trial interval (I.T.I.) controlled automatically by the master console.

E had visual access from the control room to Ss activities on the panels by means of mirrors focused on each panel. This served as a check on the accuracy of Ss behaviour with respect to the experimental procedure.

An internal transistor type, model AW (style 90M) Esterline-Angus Event Recorder was employed to record the onset and offset of lights, intertrial interval, and inter-stimulus intervals that were pre-programmed on the master panel. Ss responses and the point at which they were made i.e. before or after the orange light were also recorded by the Esterline.

Verbal communication between E and each S, independently, was possible by means of a small earphone that hung over S's ear.

During the experimentation, a General Electric air conditioner fixed in a window of the subject room was turned on 'high' in order to provide constant noise to drown out extraneous sounds from the master panel and the rest of the environment.

Procedure

A white light appeared on S's panel. Four seconds later, an orange cue light appeared and after another 4

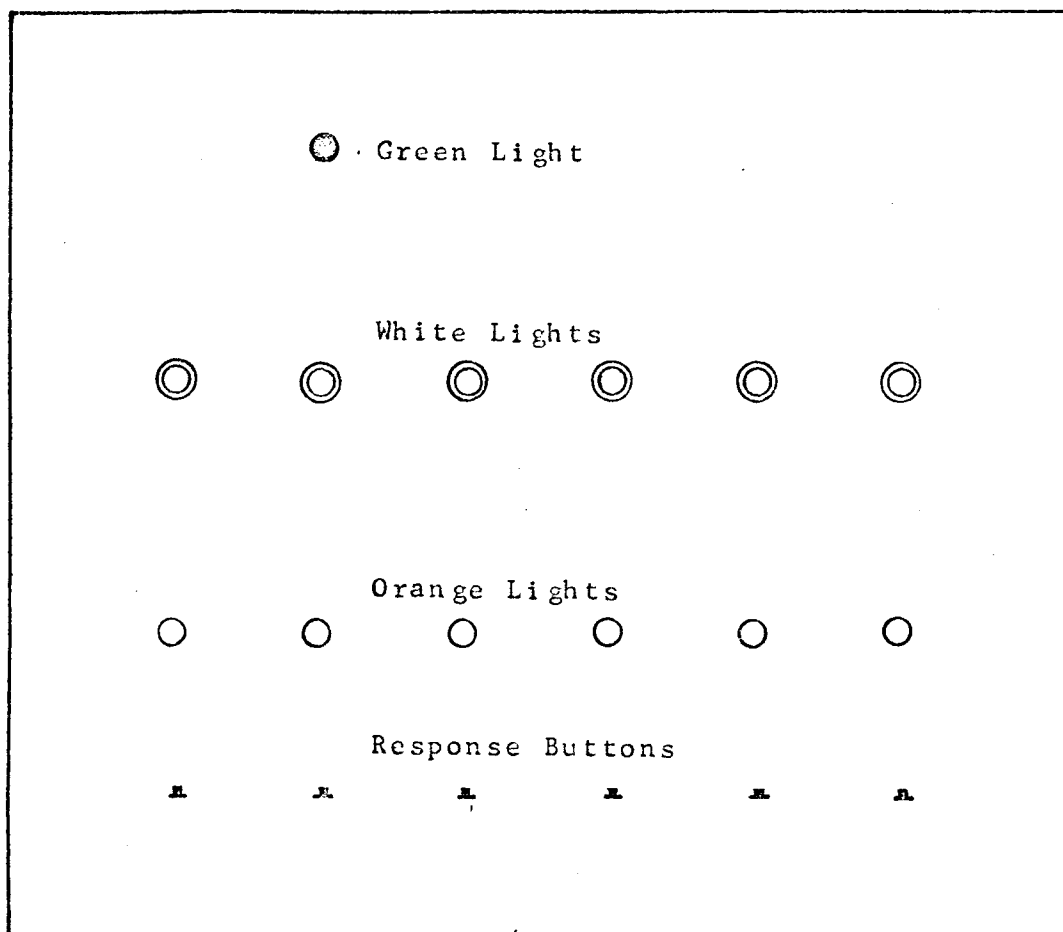


Fig.1. Schematic representation of the individual subject panel A, B or C of the General Learning Apparatus.

seconds the white light and the cue light terminated together. The time between the onset of the white light and the onset of the cue light was called the interstimulus interval. The latter was set at 4 seconds on the basis of a study performed by Ladd (1965) where the interstimulus interval of 4 seconds was found optimal. The variables present in this study were assumed to be randomized in Ladd's. The intertrial interval (ITI) (time between the offset and onset of the white lights) was also 4 seconds.

The task was for S to learn the correct response button-white light connections. S could respond by pressing one(1) of the six response buttons any time during the illumination of the white light. If a subject made a correct response, the green positive reinforcement light came on immediately and then terminated with the white and orange lights. If an incorrect response was made, no green light appeared.

Ss received a continuous series of blocks of 6 trials each until they learned to criterion. Learning was operationally defined firstly, as the total number of trials required to reach a criterion of 12 consecutive correct responses and secondly, as the total number of trials required to reach successive criteria of correct responses ranging from 1 to 6 in one trial block. An additional criterion consisted of one trial block of 6 correct responses directly following the previous block in the criteria series. In both definitions of learning, therefore, the criterion for

100% correct stimulus light - response button connections was 12 consecutive correct responses.

Ss would respond before or after the onset of the orange light, as the orange light indicated to Ss the response of a bogus subject that may or may have been correct. This procedure, therefore, permitted Ss a choice of responding dependently or independently. The presentation of the sequence of white lights was randomized over a cycle of 36 trials so that no serial learning could take place. This sequence was maintained throughout the whole experiment so that all Ss would be exposed equally to any uncontrolled variables accruing to the order of the sequence (see Appendix C).

The thirty high dogmatic Ss were broken down further into two randomly choosen groups of fifteen Ss each, one of which underwent the experiment in the presence of a confederate of E defined socially and in terms of the apparatus as being high in status. The other group of fifteen Ss were exposed to a confederate of E who was defined as being low in status. The thirty low dogmatic Ss were broken down in the same way. The high status bogus S was introduced to the experimental Ss in the following way: "Mr. Ladd of the University of Windsor. Mr. Ladd is a doctoral candidate who has been closely associated with this apparatus during the period of its design and construction. Mr. Ladd, with his extensive experience on this machine will be doing the same experimental work as you.

As you will see in a few minutes, he may be able to be of some help to you as well."

The low status confederate, an undergraduate, was defined as being equal to that of the experimental Ss. He was introduced by his correct name as follows: "Tom Burns is an undergraduate at this university and he will be doing the same experimental work as you."

A final independent variable was provided by breaking down each status group of fifteen subjects into three groups of five Ss each. Each group of five Ss within a status group was randomly assigned, without prior knowledge, to one of three degrees or percentages of misinformation that was to arrive from the status confederate via the orange lights on the Ss panels. The three degrees of misinformation were 15%, 50% and 85% false responses in the manner of an arithmetic progression. Misinformation from the bogus S was defined as the percentage of incorrect orange light responses per trial block of 6 trials each observed by the experimental Ss as belonging to the confederate of E and randomly given over a cycle of thirty-six trials. Conformity was operationally defined as any subject response that was subsequent to the onset of the orange light and that was an imitation of the response that it signified.

Identical instructions concerning the experimental tasks was given to all Ss except for minor name changes regarding E's confederate. After seating all the subjects

and the confederate at their respective panels, the instructions for the learning task were administered in the form presented in Appendix B. In the case of those Ss exposed to the high status condition, the confederate of E administered the instructions in an attempt to enhance the confederates high status. E administered the instructions to those Ss exposed to the low status confederate.

Ss were told that each response button was electrically connected to a different white light. They were to respond to each white light while it was on by pressing one (1) response button. Ss were informed that the confederate was performing the same task and that the orange light which came on after the white light was an indication of the response button that the confederate chose to depress. It was mentioned that this procedure allowed Ss and confederate to maintain mutual contact. To avoid Ss suspicion concerning the perfect 4 second inter-stimulus interval, it was alleged that the confederates responses were on delayed tape, and thus the consistency of the confederates response with respect to time. Ss were to receive a green light if their response was correct and no green light if it was incorrect. E remarked that Ss could respond any time that the white light was on in order that Ss would understand that they could respond before or after the orange light. In counselling Ss to respond as correctly as possible, E hoped to increase task motivation and to emphasize the desirability of correct responses even

if the S perceived the situation as one where he must respond by copying from the bogus subject.

The instructions were read aloud twice while Ss read along silently on separately available instruction sheets. An opportunity was given to Ss to ask questions. Replies to these questions were given only by repetition of the pertinent parts of the instructions as read from the instruction sheets by the administrator. The instruction sheets were then collected and the first trial began.

All 12 groups were run randomly under the various conditions of the experiment to control for the dissemination to other potential Ss of information correctly anticipatory of the procedure in subsequent experimental sessions. The experiment was completed in 29 experimental sessions.

The programme of stimulus light - response button connections were changed from one experimental session to another in order to control for the correct responses becoming common knowledge in the subject pool. All programmes were of equal difficulty and one to three Ss were run at a time. Table 1 presents the complete experimental arrangement.

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Table 1
Proposed Levels of Correctness with Two Levels of Status Within High and Low
Dogmatic Groups (N=60)

Percent of Misinformation for Each Bogus Subject						
	15%	15%	50%	50%	85%	85%
	H. Status	L. Status	H. Status	L. Status	H. Status	L. Status
High	5 Ss	5 Ss	5 Ss	5 Ss	5 Ss	5 Ss
Low	5 Ss	5 Ss	5 Ss	5 Ss	5 Ss	5 Ss

CHAPTER III

PRESENTATION AND ANALYSIS OF RESULTS

The initial sample of 377 Ss which was administered the D scale was reduced by 55 Ss to a final sample consistency of 322 Ss. The 55 Ss were eliminated as a result of incomplete questionnaires, foreign birth and an L scale scores exceeding 7. The resultant distribution was normal with a mean of 18.77, a median of 17.71, a mode of 17.50 and a standard deviation of 5.25. Below the first standard deviation below the mean, the low dogmatics numbered 47 Ss with 27 females and 20 males. The high dogmatic individuals who fell above the first standard deviations above the mean numbered 46 Ss with 25 females and 21 males. The test re-test reliability procedure yielded a Pearson Product-Moment correlation coefficient of .56 ($N=201$) and was significant at the .01 level.

The experimental results are presented in two sections. These sections include, the measures of learning and the measures of conformity for all the experimental groups.

Measures of Learning

One of the learning measures in this study, but not the primary one, was the total number of trials taken

by each S to reach a criterion of 12 consecutive correct responses or white light - response button associations. The more trials it took to reach criterion the slower was the learning.

Table 2 shows a summary of the three way analysis of variance computed on the total number of trials required by all twelve experimental groups to reach 100% learning. The high dogmatic group took significantly longer to learn to criterion than the low dogmatic group (.01 level of confidence). It appears as if the levels of misinformation from the stooge, had no significant independent effect on time taken to learn to criterion, although the F ratio for this factor approached significance at the .90 level of confidence. High status groups, however, took significantly longer to learn to criterion than did the low status groups (.05 level of confidence). There was a significant interaction of status with dogmatism at the .05 level of confidence as shown in Figure 2. From the summary of the simple effects for this interaction (Table 3) it was demonstrated that high dogmatics were longer in learning to criterion than were low dogmatics when exposed to a high status or a low status source of information (.01 level). However, high dogmatics took significantly longer to learn under the high status condition than they did under the low status condition (.01 level). There was no significant difference among low dogmatics in this regard. Finally no significant interaction of either correctness of information

with dogmatism or status with correctness of information was evident.

A further analysis of variance was performed to deal only with the total number of trials required to learn to criterion after the immediate cessation of conformity behaviour (all trials subsequent to the trial on which the last conformity response occurred).

Table 2

Analysis of Variance on the Total Number of Trials Required to Attain Perfect Learning for each Level of Dogmatism, Misinformation and Status (N=60).

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A (Dogmatism)	646.81	1	646.81	90.08***
B (Misinformation)	38.93	2	19.47	2.71*
C (Status)	30.81	1	30.81	4.28**
AB	4.94	2	2.47	
AC	30.83	1	30.83	4.29**
BC	16.14	2	8.70	1.21
ABC	6.92	2	3.46	
Within cell	344.80	48	7.18	

*** F .99 (1, 48) = 7.22

** F .95 (1, 48) = 4.05

* F .90 (2, 48) = 2.42

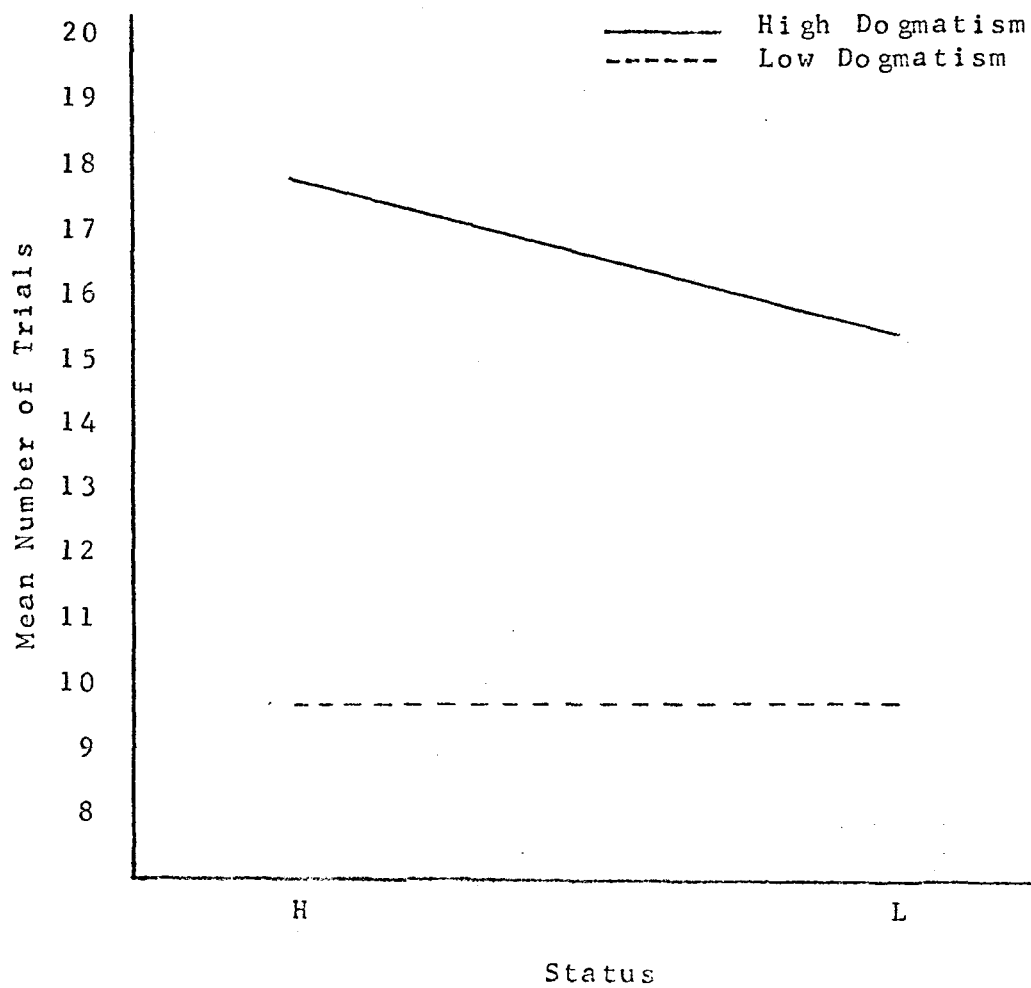


Fig.2. Mean number of trials to 100% learning for two levels of status and two levels of dogmatism (N=60).

Table 3

Analysis of Variance for Simple Effects of Dogmatism
and Status on the Total Number of Trials Required
to Reach 100% Learning (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A at C ₁ (Dogmatism at High Status)	480.00	1	480.00	66.85*
A at C ₂	197.63	1	197.63	27.53*
C at A ₁ (Status at High Dogmatism)	61.63	1	61.63	8.58*
C at A ₂	0.00	1	0.00	
Within cell	344.80	48	7.18	

* F .99 (1, 48) = 7.30

This learning measure was therefore identical to the one used above except that trials during which there were conforming responses were excluded from the analysis. Table 4 shows that there was no significant difference resulting from the experimental conditions under these circumstances. This finding, in conjunction with the findings in Tables 2 and 3 above suggest that the experimental conditions no longer exerted a significant influence on the total trials required to learn to criterion since the stimulus situations no longer affect learning by eliciting conformity behaviour. Specifically, it is also notable that there was no significant independent effect of dogmatism on learning after conformity behaviour had

ceased.

Table 4

Analysis of Variance on the Total Number of Trials
Required to Attain Perfect Learning Subsequent
to the Cessation of Conformity Behaviour
for each Level of Dogmatism, Misinform-
ation and Status (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A (Dogmatism)	294.81	1	294.81	
B (Misinformation)	123.33	2	61.67	
C (Status)	2.81	1	2.81	
AB	14.94	2	7.47	
AC	14.02	1	14.02	
BC	27.74	2	13.87	
ABC	1.73	2	0.87	
Within cell (experimental error)	34677.60	48	722.45	

The primary learning measure in this study consisted of the total number of trials required by each S to reach successive criteria of correct white light - response button associations. As in the analysis of Table 4, only those trials succeeding the last conformity responses were utilized. The criteria ranged from 1 to 6 correct responses in a trial block and a second perfect trial block immediately following the first trial block on which 6 straight correct responses were made. The latter is designated as 6'.

A four way analysis of variance for repeated measures was computed on the total number of trials

required to reach successive criteria of correct responses. The summary of this analysis is presented in Table 5.

Consider first the between Ss differences. In general, the high dogmatics required a longer time to learn to successive criteria than did the low dogmatic Ss ($P > .01$). There was no significant main effect for status. However, a significant difference at the .05 level was found among the levels of misinformation with respect to time taken to learn. It appears as if the subjects exposed to the 15% misinformation condition, performed better, in general, than did the Ss under either the 50% or 85% conditions (Figure 5). There was no significant interaction of status with dogmatism, levels of misinformation with dogmatism or correctness as a function of status.

The within Ss differences show a significant increase in the level of learning from criteria to criteria at the .01 level for all Ss in general. Figure 3 graphically represents the significant interaction (.01 level) of dogmatism with successive criteria. An analysis for the simple effects for this interaction (Table 6) reveals that high and low dogmatics do not perform significantly different from one another during the first four successive criteria. The high dogmatics are significantly inferior at the .01 level of confidence for all the remaining successive criteria. A second analysis of variance (Table 7) for the simple effects for trials taken to reach successive criteria as a

function of status (.05 level) as shown in Figure 4 reveals that there is no significant difference for the status groups in time taken to learn, up to the first two successive criteria. After this point, low status Ss are inferior in performance to the high status Ss over the following two successive criteria (.01 and .05 levels respectively). The two status groups do not perform significantly different from one another throughout the remainder of the learning process.

The data in Table 5 also show a significant interaction of successive criteria with misinformation at the .01 level of confidence. Figure 5 in conjunction with an analysis of variance for the simple effects (Table 8) of this interaction points directly or by inference to where the significant differences lay. There are no significant differences among the three levels of misinformation over the first 3 successive criteria or between the 85% and 50% misinformation groups up until the fifth successive criteria. Over the last two criteria, the 85% group appears to be inferior to the 50% group but possibly not significantly so. At the fourth criteria, the 15% group is significantly superior to the 85% and the 50% groups, but not at the fifth criterion. The 15% group is significantly superior in learning to the other two levels of misinformation over the last two criteria.

Table 5

Analysis of Variance on the Total Number of Trials
Taken to Reach Successive Criteria of Mastery
of Stimulus Light - Response Button Connections
for each Level of Dogmatism, Misinformation,
and Status (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A (Dogmatism)	288.82	1	288.82	11.81*
B (Status)	45.35	1	45.35	2.34
C (Misinformation)	193.85	2	96.92	5.00**
AB	3.80	1	3.80	
AC	34.41	2	17.21	
BC	52.51	2	26.26	1.36
ABC	11.29	2	5.65	
Subj. w. groups [error (between)]	929.60	48	19.37	
D (Successive Criteria)	5853.11	6	975.52	336.39***
AD	388.34	6	64.72	22.31***
BD	44.35	6	7.39	2.55*****
CD	105.98	12	8.83	3.04****
ABD	11.97	6	1.99	
ACD	49.43	12	4.12	1.42
BCD	38.99	12	3.25	
ABCD	24.74	12	2.06	
D x subj. w. groups [error (within)]	834.80	288	2.90	
<hr/>				
* F .99 (1, 48) = 7.30	**** F .99 (12, 288) = 2.18			
** F .95 (2, 48) = 3.20	***** F .95 (6, 288) = 2.12			
*** F .99 (6, 288) = 2.80				

Table 6

Analysis of Variance for the Simple Effects of
Dogmatism Over the Total Number of Trials
Taken to Reach Successive Criteria
of Mastery (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A at d ₁ (Dogmatism at First Criterion)	.26	1	.26	
A at d ₂	9.60	1	9.60	1.83
A at d ₃	.01	1	.01	
A at d ₄	4.26	1	4.26	
A at d ₅	109.35	1	109.35	20.82*
A at d ₆	194.40	1	194.40	37.03*
A at d ₆	299.27	1	299.27	57.00*
Pooled error	1764.40	336	5.25	
D at a ₁ (Successive Criteria at High Dogmatism)	4597.50	6	766.25	264.22**
D at a ₂	1643.96	6	273.99	94.48**
D x Subj. w. groups [error (within)]	834.80	288	2.90	

*F .99 (1,336) = 6.63				
**F .99 (6,288) = 2.80				

Table 7

Analysis of Variance for the Simple Effect of Status
Over the Total Number of Trials Taken to Reach
Successive Criteria of Mastery (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
B at d ₁ (Status at First Criterion)	.26	1	.26	
B at d ₂	13.32	1	13.32	2.54
B at d ₃	43.35	1	43.35	8.25*
B at d ₄	21.60	1	21.60	4.11**
B at d ₅	7.35	1	7.35	1.40
B at d ₆	1.67	1	1.67	
B at d ₆	2.40	1	2.40	
Pooled error	1764.40	336	5.25	
D at b ₁ (Successive Criteria at High Status)	3231.37	6	538.56	185.71***
D at b ₂	2666.10	6	444.35	153.22***
D x Subj. w. groups [error (within)]	834.80	288	2.90	

*F .99 (1,336) = 6.63				
**F .95 (1,336) = 3.84				
***F .99 (6,288) = 2.80				

Table 8

Analysis of Variance for the Simple Effects of
Misinformation Over the Total Number of
Trials Taken to Reach Successive
Criteria (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
C at d ₁ (Misinformation at First Criterion)	.13	2	.02	
C at d ₂	10.13	2	5.02	.96
C at d ₃	6.43	2	3.22	
C at d ₄	38.63	2	19.32	3.68
C at d ₅	29.75	2	14.88	2.83
C at d ₆	87.70	2	43.85	8.35*
C at d ₆ , Pooled error	126.70	2	63.35	12.07*
	1764.40	336	5.25	
D at c ₁ (Successive Criteria at 15% Misinformation)	1411.44	6	235.24	81.12**
D at c ₂ (50%)	2041.00	6	340.17	117.30**
D at c ₃ (85%)	2506.64	6	417.77	144.06**
D x Subj. w. groups [error (within)]	834.80	288	2.90	

*F .99 (2,336) = 4.61				
**F .99 (6,288) = 2.80				

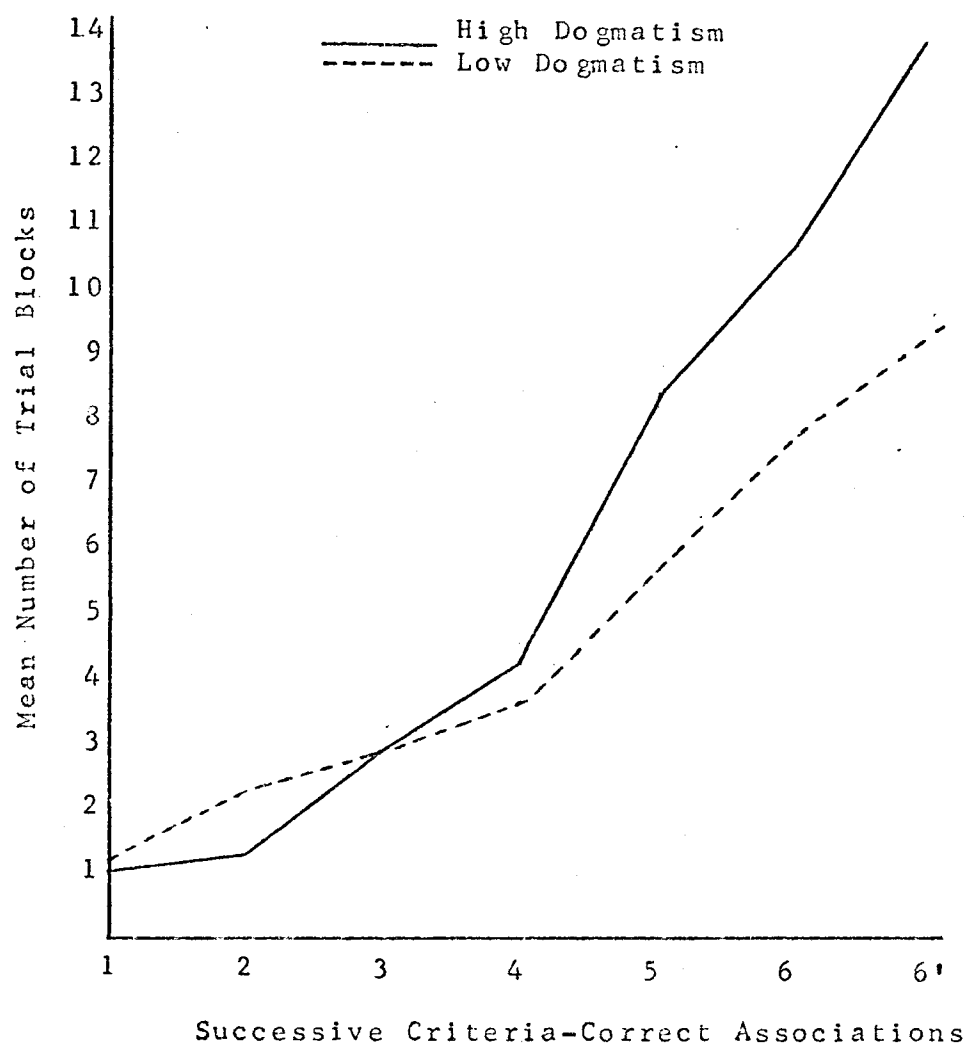


Fig.3. Learning curves for high and low dogmatism ($N=60$).

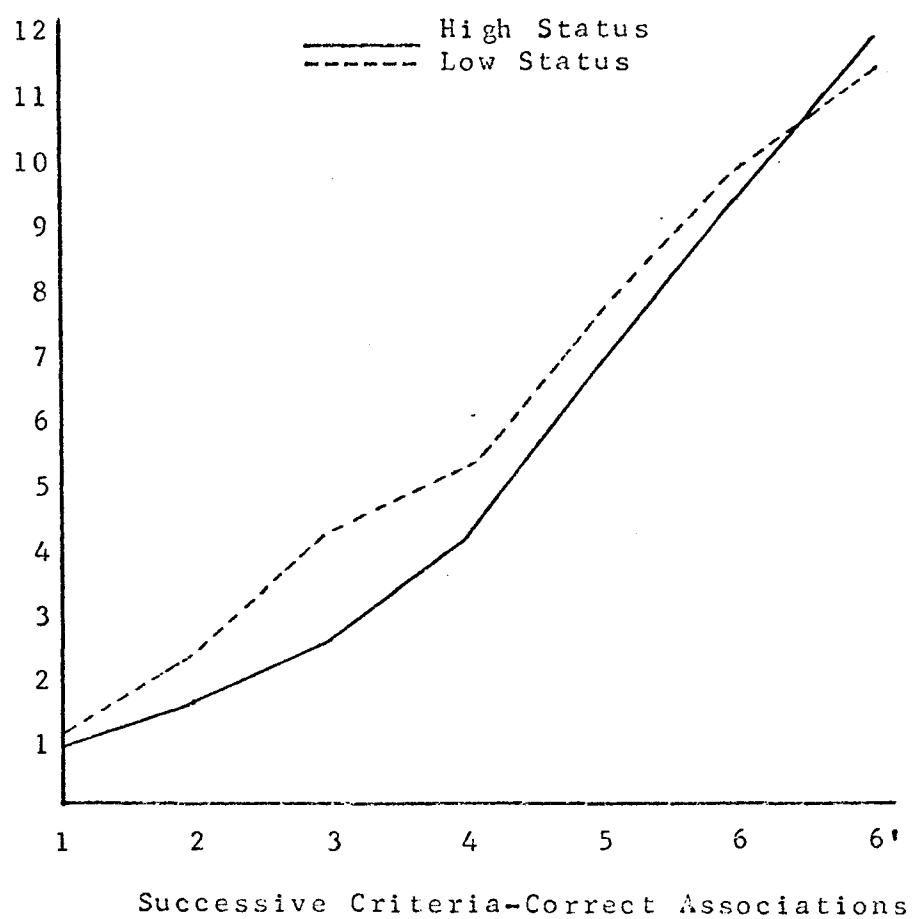


Fig.4. Learning curves for high and low status (N=60).

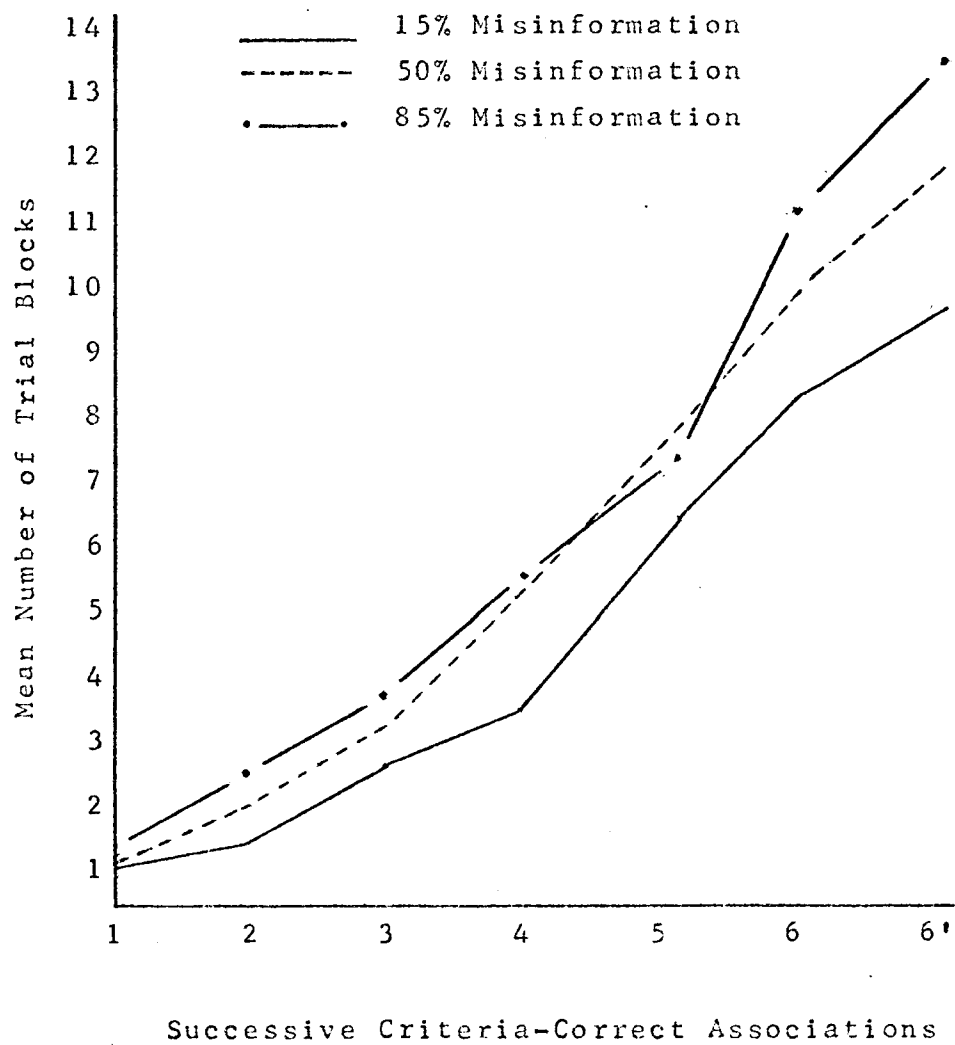


Fig.5. Learning curves for 15%, 50% and 85% misinformation (N=60).

Measures of Conformity

The first conformity measure considered in this study is the total number of trials taken by each S to reach a criterion of complete and final cessation of conformity responses, that is, responses to the experimental task that were subsequent to the alleged response of the bogus subject (orange light) and in imitation of it. The more trials that were undergone to reach the criterion of 0% conformity, the greater was the amount of conformity behaviour.

Table 9 reveals a summary of the three way analysis of variance with 5 observations per cell computed on the total number of trials required by all Ss to reach the first trial on which there was complete and final cessation of conformity behaviour. All significant results were at the .05 level of confidence in this analysis.

In general, the high dogmatic Ss took a greater number of trials to reach 0% conformity than did the low dogmatic Ss ($P > .01$). It is clearly illustrated in Figure 7 that for the levels of misinformation, the 15% correctness group conformed for an insignificantly longer time than did either the 50 or the 85% misinformation groups ($p > .01$). No significant difference between the latter two levels is apparent for this main effect. High status Ss, on the average, conformed for a significantly greater number of trials than did low status Ss ($p > .01$).

The data contained in Table 9 and graphed in Figure 6 indicate a significant interaction between status and dogmatism ($P > .05$). A summary of the analysis of variance for the simple effects of this interaction (Table 10) demonstrated that high dogmatics were significantly more persistent in their conformity behaviour under both status conditions than were low dogmatic Ss (.01 level). The interaction revealed that among high dogmatics, high status Ss conformed significantly more than low status Ss (.01 level). There was no difference in this respect among low dogmatics.

An analysis of variance for the simple effects of misinformation as a function of dogmatism (Table 11, Figure 7) revealed that under the 15% and 50% levels of misinformation, the high dogmatics were significantly more dependent in their responses than the low dogmatics at the .01 level of confidence. The same was true for the 85% misinformation condition at the .05 level. There was significantly greater conformity behaviour among high dogmatics for the 15% misinformation condition than either of the other two levels of the misinformation factor ($P > .01$). The latter two levels did not differ significantly among high dogmatics nor did the low dogmatics differ significantly among themselves on the misinformation treatment conditions. The data in Table 9 shows no correspondence of status with dogmatism.

The primary conformity measure employed consisted of the total number of trials taken by each S to reach

successive criteria of fewer and fewer conformity responses ranging from 6 to 0.

A four way analysis of variance for repeated measures was computed on the total number of trials required for all Ss to reach successive criteria of fewer conformity responses. The summary of this analysis is presented in Table 12.

For the between Ss differences, in general, the high dogmatics took significantly more trials over the successive criteria than did the low dogmatics Ss ($P > .01$).

Table 9

Analysis of Variance on the Total Number of Trials
Required to Reach the Point of Complete and Final
Cessation of Conformity Responses for each
Level of Dogmatism, Misinformation
and Status (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A (Dogmatism)	68.26	1	68.26	88.65*
B (Misinformation)	40.93	2	20.47	26.58**
C (Status)	15.00	1	15.00	19.48*
AB	32.14	2	16.70	21.69**
AC	3.27	1	3.27	4.25***
BC	2.80	2	1.40	1.82
ABC	1.73	2	.87	
Within cell (Experimental error)	36.80	48	.77	

*F .99 (1,48) = 7.30				
**F .99 (2,48) = 4.78				
***F .95 (1,48) = 4.05				

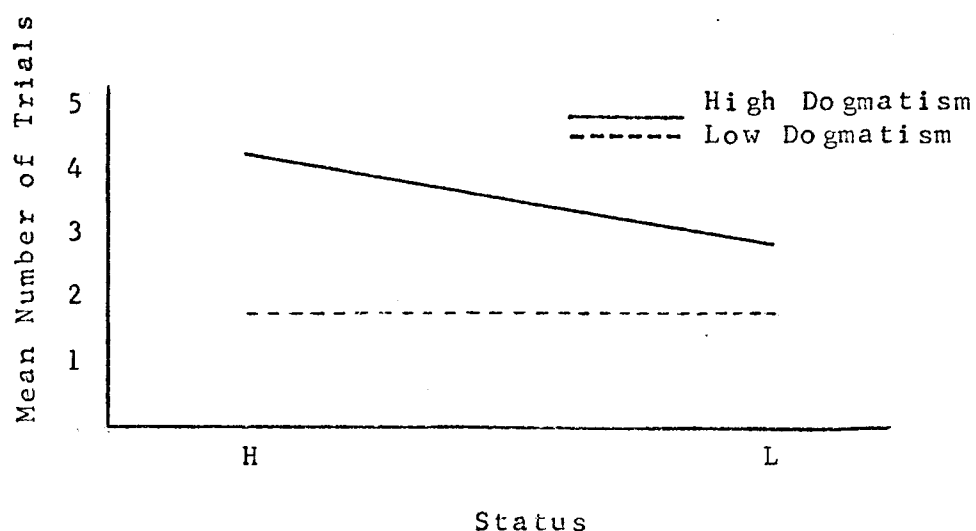


Fig.6. Mean number of trials required to reach complete and final cessation of conformity responses for two levels of status at two levels of dogmatism (N=60)

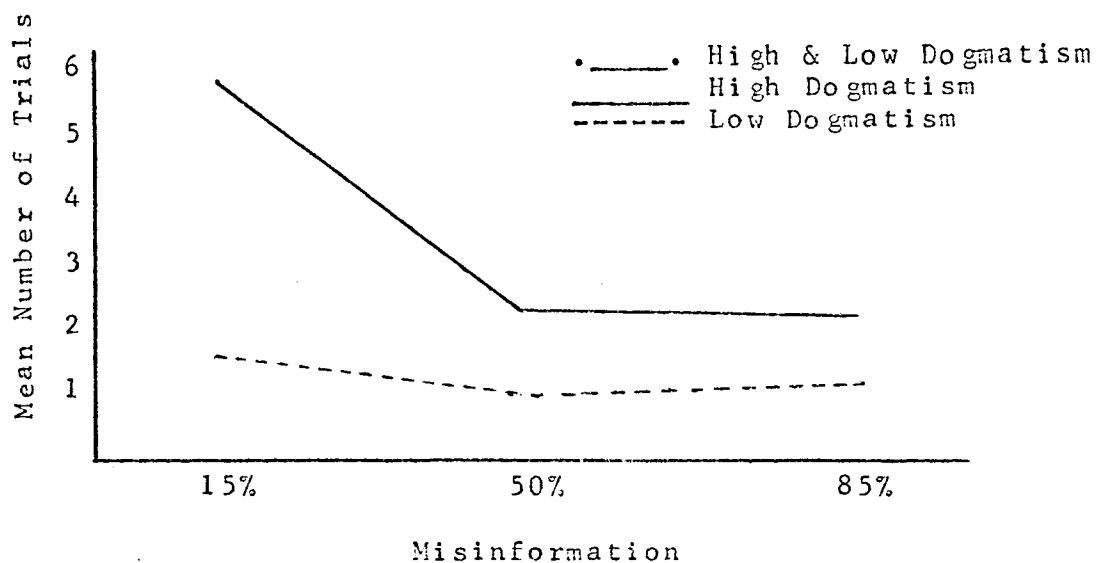


Fig.7. Mean number of trials required to reach complete and final cessation of conformity responses for three levels of misinformation at two levels of dogmatism and both levels of dogmatism combined (N=60).

Table 10

Analysis of Variance for the Simple Effects of Two Levels
of Dogmatism and Two Levels of Status on the Total Number
of Trials Required to Reach 0% Conformity Behaviour
(N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A at c_1 (Dogmatism at High Status)	50.70	1	50.70	65.84*
A at c_2	20.84	1	20.84	27.06*
C at a_1 (Status at High Dogmatism)	16.13	1	16.13	20.95*
C at a_2	2.13	1	2.13	
Within cell (Experimental error)	36.80	48	.77	

*F .99 (1,48) = 7.30

Table 11

Analysis of Variance for the Simple Effects of Two Levels
of Dogmatism and Three Levels of Misinformation on
the Total Number of Trials Required to Reach
0% Conformity Behaviour (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A at b (Dogmatism at 15% Misinformation)	88.20	1	88.20	114.54*
A at b	7.20	1	7.20	9.35*
A at b	5.00	1	5.00	6.49**
B at a (Misinformation at High Dogmatism)	72.60	2	36.30	47.14***
B at a	.47	2	.24	
Within cell (Experimental error)	36.80	48	.77	

*F .99 (1,48) = 7.30				
**F .95 (1,48) = 4.05				
***F .99 (2,48) = 4.78				

Table 12

Analysis of Variance on the Total Number of Trials Taken
to Reach Successive Criteria of Fewer Conformity
Responses for each Level of Dogmatism,
Misinformation and Status (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A (Dogmatism)	254.59	1	254.59	96.44*
B (Status)	54.28	1	54.28	20.56*
C (Misinformation)	240.32	2	120.16	45.51**
AB	24.30	1	24.30	9.20*
AC	207.16	2	103.58	39.23**
BC	31.18	2	15.59	5.91**
ABC	15.50	2	7.75	2.09
Subj. w. groups [error (between)]	127.03	48	2.64	
D (Successive Criteria)	201.96	6	33.66	90.97***
AD	30.76	6	5.13	13.86***
BD	7.81	6	1.30	3.51***
CD	16.85	12	1.40	3.78****
ABD	2.24	6	.37	1.00
ACD	13.87	12	1.16	3.13****
BCD	4.58	12	.38	1.03
ABCD	4.80	12	.40	1.08
D x Subj. w. groups [error (within)]	84.57	288	.37	

*F .99 (1,48) = 7.30
 **F .99 (2,48) = 4.78
 ***F .99 (6,288) = 2.80
 ****F .99 (12,288) = 2.18

In the same way, high status subjects conformed significantly more than low status subjects ($P. > .01$). The main effect for misinformation (Figure 9) produced significant differences in that the 15% misinformation group provided more conforming responses than either the 50% or the 85% groups ($P. > .01$). Neither of the latter two groups differed significantly.

Table 12 points to three significant two way interactions ($P. > .01$); status as a function of dogmatism, misinformation as a function of dogmatism and misinformation as a function of status. The analyses for the sample effects of all their interactions are given in the order presented above in Tables 13, 14, 15 respectively. The same interactions are graphed in the same order and presented in Figures 8, 9 and 10 respectively.

The interaction of status with dogmatism is similar to the same interaction of the previous conformity analysis. High dogmatics were significantly more persistent in their conformity behaviour over successive criteria under both status conditions than were low dogmatics Ss ($P. > .01$). Among high dogmatics, high status Ss generally conformed significantly more than low status Ss ($P. > .01$). There was no significant difference in this respect among low dogmatics.

The interaction of misinformation with dogmatism, also assumes a similar form to the same interaction in the previous analysis of Figure 7, except that there is no

significant difference for dogmatism at 85% misinformation. However, at 50% and 15% misinformation, high dogmatics show a greater number of conforming trials than low dogmatics at the .05 and .01 levels of confidence respectively. The data also reveals that among high dogmatics, there was significantly more conformity behaviour for the 15% misinformation condition than for the other two levels of the same factor ($P > .01$). The latter two levels did not differ significantly among the high dogmatics, nor did the low dogmatics differ significantly among themselves on the misinformation treatment condition.

Finally, the data in Table 12 showed a significant relationship between status and misinformation. There was a significant difference at the .01 level between the levels of status for the 15% (high status Ss showed more conformity) misinformation condition but not for the 50% and 85% levels of misinformation. Among both the high status and the low status subjects, the 15% misinformation yielded significantly more conformity trials than the other two levels of misinformation (.01 level). The 50% and 85% levels did not differ significantly from one another among either high or low status Ss with respect to their effect on the number of conformity trials.

Table 13

Analysis of Variance for the Simple Effects of Two Levels
of Status X Two Levels of Dogmatism on the Total
Number of Trials Over Successive Criteria
(N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A at b (Dogmatism at High Status)	218.08	1	218.08	82.29*
A at b	60.80	1	60.80	22.94*
B at a (Status at High Dogmatism)	75.58	1	75.58	28.52*
B at a	2.98	1	2.98	1.12
Subj. w. groups [error (between)]	127.03	48	2.65	

*F .99 (1,48) = 7.30

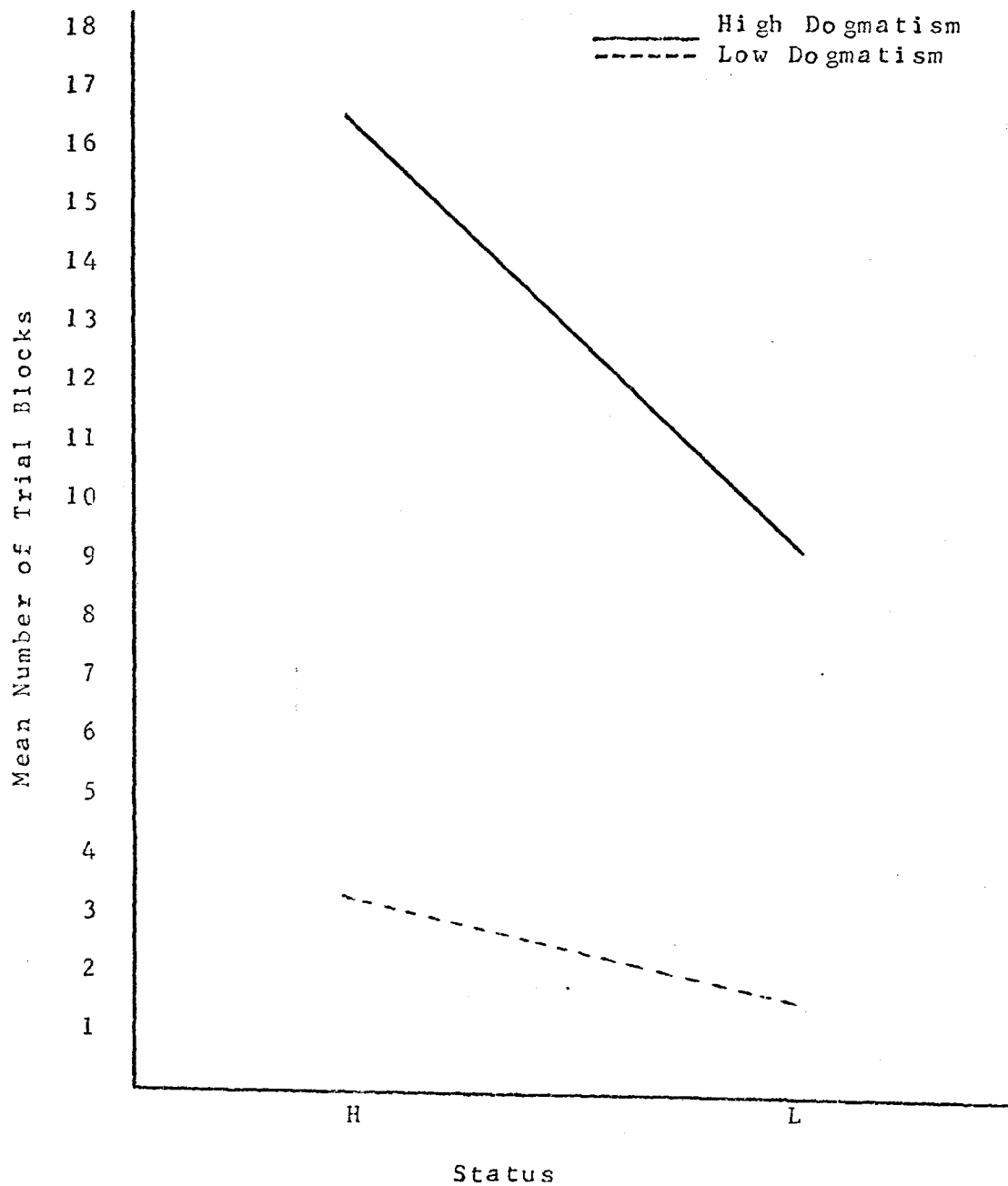


Fig.8. Mean conformity responses for two levels of status at two levels of dogmatism (N=60).

Table 14

Analysis of Variance for the Simple Effects of Three Levels
of Misinformation X Two Levels of Dogmatism on the Total
Number of Trials Over Successive Criteria (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A at c_1 (Dogmatism at 15% Misinform- ation)	439.31	1	439.31	165.78*
A at c_2	14.46	1	14.46	5.46***
A at c_3	8.26	1	8.26	3.12
C at a_1 (Misinformati- on at High Dogmatism)	446.76	2	223.38	84.29**
C at a_2	.73	2	.37	
Subj. w. groups [error (between)]	127.03	48	2.65	

*F .99 (1,48) = 7.30				
**F .99 (2,48) = 4.78				
***F .95 (1,48) = 4.05				

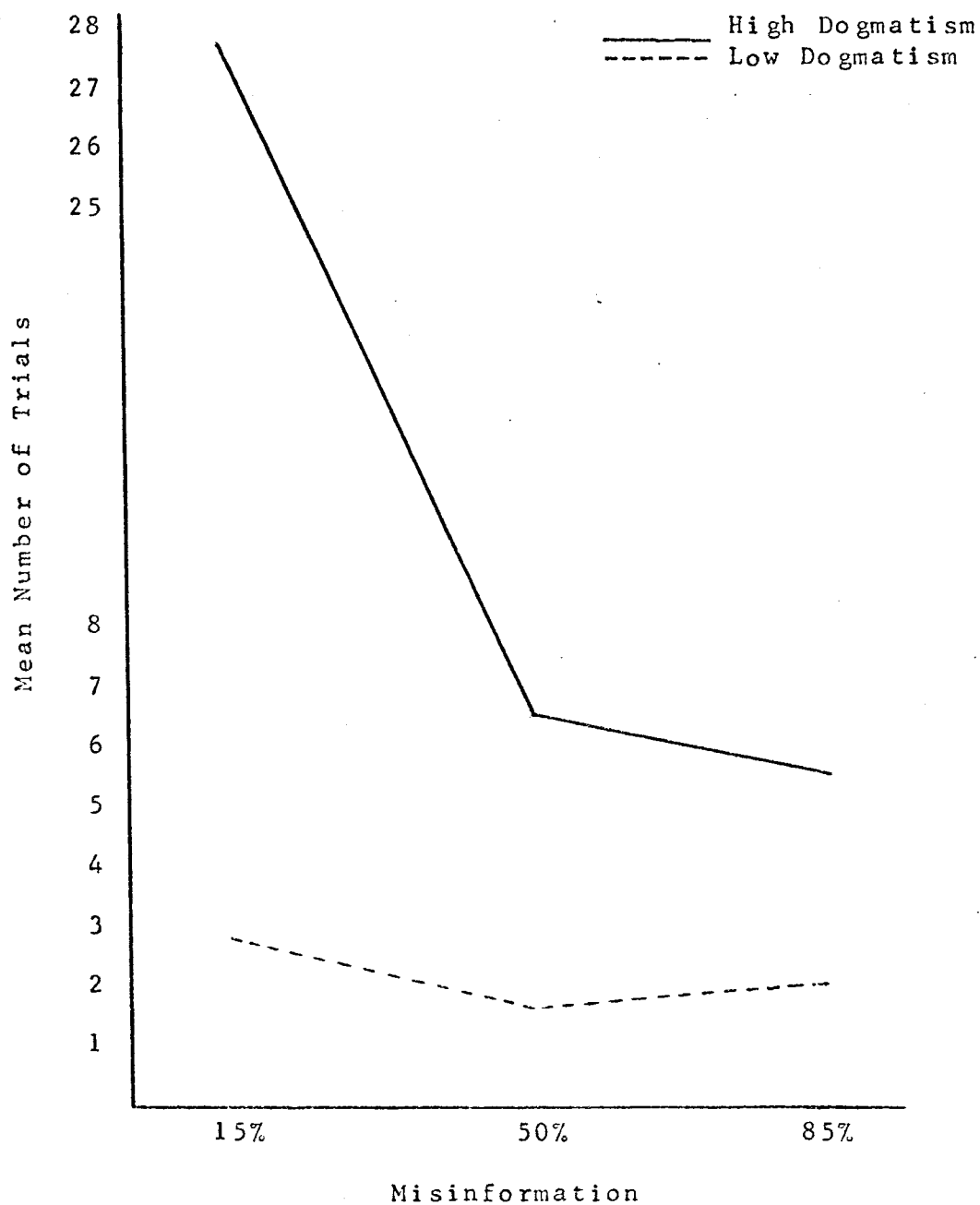


Fig.9. Mean conformity responses for three levels of misinformation at two levels of dogmatism (N=60).

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Table 15

Analysis of Variance for the Simple Effects of the Two Levels of Status X the Three Levels of Misinformation, on the Total Number of Trials Over Successive Criteria (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
B at c_1 (Status at 15% Misinformation)	77.26	1	77.26	29.27*
B at c_2	2.06	1	2.06	
B at c_3	6.43	1	6.43	2.44
C at b_1 (Misinformation at High Status)	221.67	2	110.84	41.98**
C at b_2	49.82	2	24.91	9.44**
Subj. w. groups [error (between)]	127.03	48	2.64	

*F .99 (1,48) = 7.30
 **F .99 (2,48) = 4.78

=====

In Table 12, the within Ss differences show a significant increase in the total number of trials required by all Ss in general to reach fewer and fewer conformity responses ($P > .01$) indicating that the average number of trials differed over the successive criteria and that all Ss finally reached 0% conformity (see Table 16).

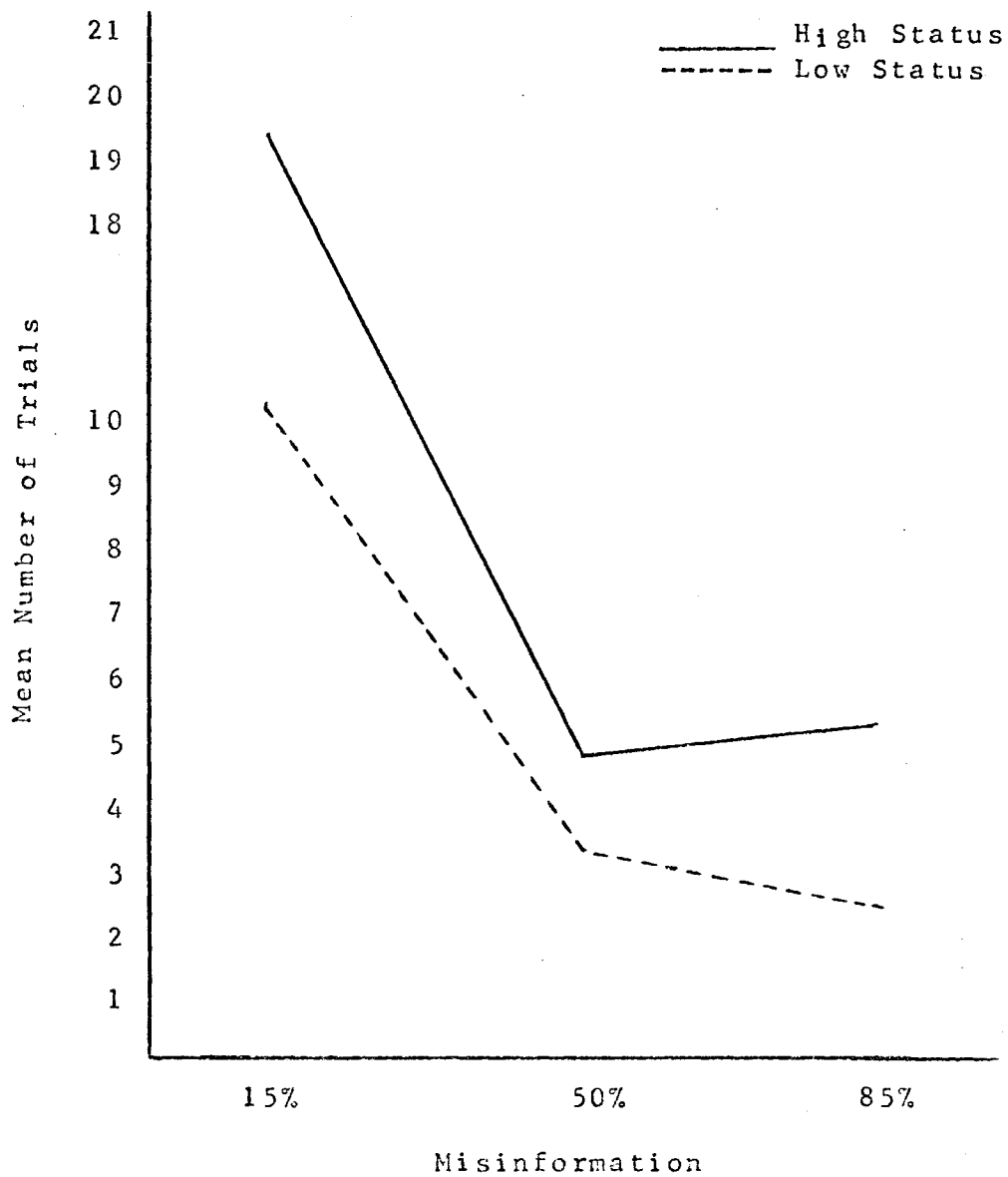


Fig.10. Mean conformity responses for three levels of misinformation at two levels of status.

Table 16

Total Number of Trials per Successive Criteria of Conformity Responses (6 to 0) for all Subjects (N=60)

SUCCESSIVE CRITERIA-CONFORMITY RESPONSES							
	6	5	4	3	2	1	0
TOTALS	14	34	48	60	70	91	152

The within Ss differences in Table 12, also point to three significant two way interactions (P. .01); successive criteria of conformity responses with dogmatism, successive criteria with status and successive criteria with misinformation. Adding force to these three interactions was an additional triple interaction of dogmatism, misinformation and successive criteria. The analysis for the simple effects of all these interactions except the triple interaction is given in the order presented above in Tables 17, 18, 19 respectively. The same interactions are graphed in the same order and presented in Figures 11, 12 and 13.

For the interaction of successive criteria with dogmatism it was found that the high dogmatics required more trials to successive criteria of conformity responses than low dogmatics. The results were significant for all the criteria at the .01 level except for the criterion of 6

conformity responses per trial block. The latter was significant at the .05 level of confidence.

With the regard to the interaction of trials to successive criteria of conformity responses as a function of status, the high status Ss conformed significantly more than low status Ss over the successive criteria that ranged from 4 to 0 (.01 level). The same was true at the criterion of 5 conformity responses per trial block at the .05 level of confidence. There was no significant difference at the criterion of 6 conformity responses for this interaction.

In Table 20, the interaction of successive criteria of conformity responses as a function of misinformation is broken down and presented in Figure 13. There is no apparent difference between the 50 and 85% misinformation groups with respect to the number of trials per successive criteria of conformity responses. However, the 15% misinformation group differs significantly for all the criteria showing themselves to be consistently more conforming in their behaviour. The results were significant at the .01 level of confidence from the criteria of 5 to 0. The criteria of 6 conformity responses pointed to the .05 level of confidence for the difference between the groups mentioned above.

Finally, there was a triple interaction of dogmatism, misinformation and successive criteria of conformity responses. This interaction demonstrates that the high

dogmatic-15% misinformation group is greater in their yield of conformity behaviour across all the successive criteria than any other combinations of factors in this interaction. These other combinations of these factors do not appear to differ from one another to any great extent. The psychological importance of this interaction is not such that further statistical analysis is warranted.

Table 17

Analysis of Variance for the Simple Effects of Dogmatism
Over the Total Number of Trials Taken to Reach Successive
Criteria of Fewer Conformity Responses (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
A at d ₆ (Dogmatism at First Criterion)	3.26	1	3.26	5.17**
A at d ₅	19.26	1	19.26	30.57*
A at d ₄	38.40	1	38.40	60.95*
A at d ₃	48.60	1	48.60	77.14*
A at d ₂	41.66	1	41.66	66.13*
A at d ₁	66.15	1	66.15	105.00*
A at d ₀	68.26	1	68.26	108.35*
Pooled error	211.60	336	.63	
D at a ₁ (Successive Criteria at High Dogmatism)	182.30	6	30.38	82.11***
E at a ₂	50.70	6	8.45	22.84***
Subj. w. groups [error (within)]	84.57	288	.37	

*F .99 (1,336) = 6.63				
**F .95 (1,336) = 3.84				
***F .99 (6,288) = 2.80				

Table 18

Analysis of Variance for the Simple Effects of Status
Over the Total Number of Trials Taken to Reach
Successive Criteria of Fewer Conformity
Responses (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
B at d ₆ (Status at First Criterion)	.60	1	.60	
B at d ₅	3.26	1	3.26	5.17**
B at d ₄	6.67	1	6.67	10.59*
B at d ₃	11.27	1	11.27	17.89*
B at d ₂	10.10	1	10.10	16.03*
B at d ₁	14.01	1	14.01	22.24*
B at d ₀	15.00	1	15.00	23.81*
Pooled error	211.60	336	.63	
D at b ₁ (Successive Criteria at High Status)	137.96	6	29.99	62.14***
D at b ₂	71.84	6	11.97	32.35***
Subj. w. groups [error (within)]	84.57	288	.37	

*F .99 (1,336) = 6.63				
**F .95 (1,336) = 3.84				
***F .99 (6,288) = 2.80				

Table 19

Analysis of Variance for the Simple Effects of
Misinformation Over the Total Number of Trials
Taken to Reach Successive Criteria of Fewer
Conformity Responses (N=60)

Source of Variation	Sum of Squares	df	Mean Squares	F Ratio
C at d ₆ (Misinformation at First Criterion)	5.23	2	2.62	4.16**
C at d ₅	32.03	2	16.02	25.43*
C at d ₄	50.70	2	25.35	40.24*
C at d ₃	47.10	2	23.55	37.38*
C at d ₂	37.77	2	18.89	29.98*
C at d ₁	42.23	2	21.13	33.54*
C at d ₀	40.93	2	20.47	32.49*
Pooled error	211.60	336	.63	
D at c ₁ (Successive Criteria at 85% Misinformation)	105.67	6	17.61	47.59***
D at c ₂	51.84	6	8.64	23.35***
D at c ₃	61.59	6	10.27	27.76***
Subj. w. groups [error (within)]	84.57	288	.37	

*F .99 (2,336) = 4.61				
**F .95 (2,336) = 3.00				
***F .99 (6,288) = 2.80				

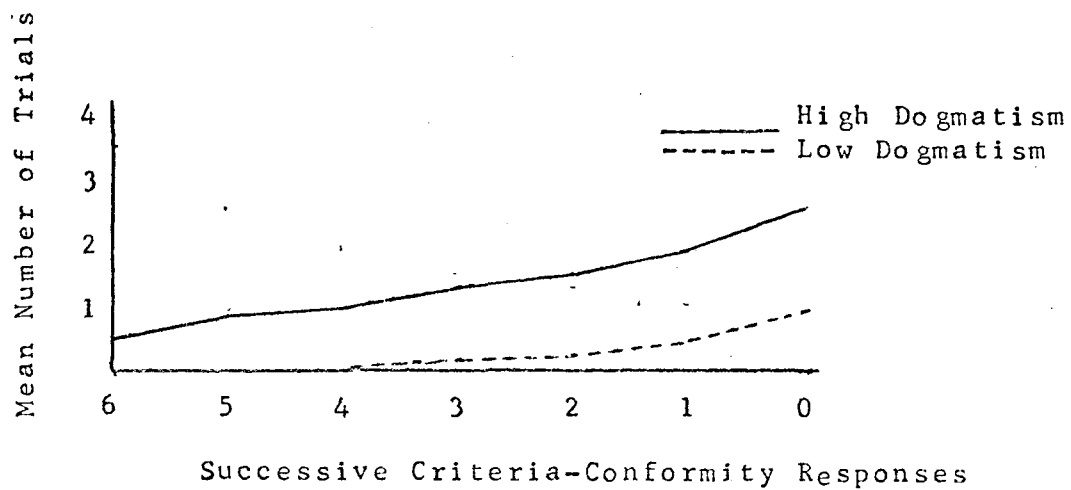


Fig.11. The mean number of trials taken to reach successive criteria of fewer conformity responses for the two levels of dogmatism (N=60).

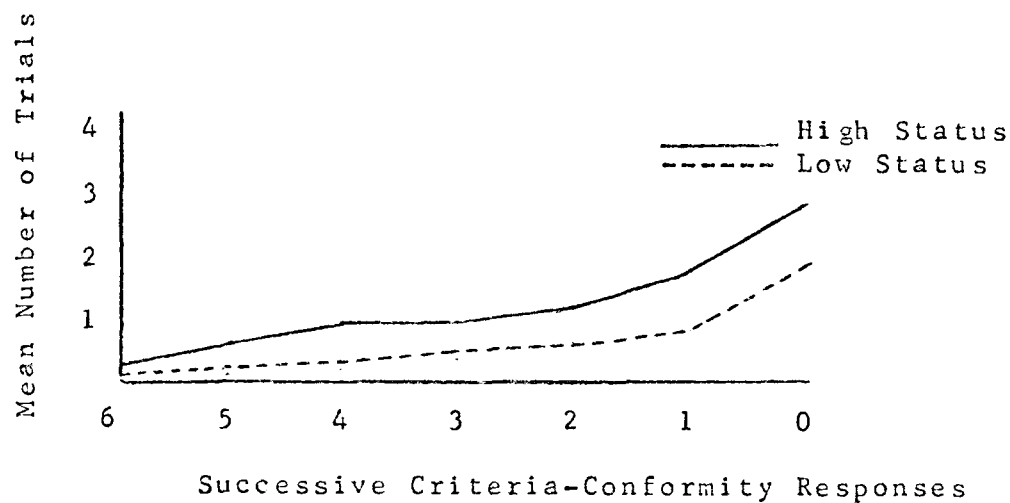


Fig.12. The mean number of trials taken to reach successive criteria of fewer conformity responses for the two levels of status (N=60).

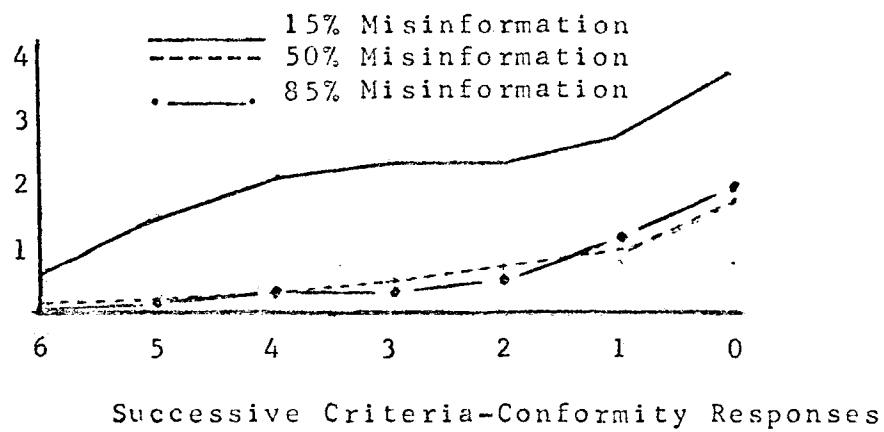


Fig.13. The mean number of trials taken to reach successive criteria of fewer conformity responses for the three levels of misinformation (N=60).

CHAPTER IV

DISCUSSION OF RESULTS

Due to the large pool of Ss available after the administration of the D Scale, there was absolutely no restriction with respect to the random choice of Ss for the experimental samples from the high and low segments of the distribution of dogmatism scores. The highly significant correlation for reliability, and the normality of the distribution of dogmatism scores, suggests an unbiased population of observations and a low error of measurement when the D Scale observations were obtained twice on the same individuals over time.

The results of Chapter III to be discussed first, pertain to 3 three-way analyses of variance with N observations per cell. Total trials to a criterion was used as a measure. The two learning analyses each employed a different set of trials. Total number of trials required by each S to reach the point of 0% conformity was the measure used in the three-way conformity analysis (see Tables 2, 3, and 7 respectively).

Learning Analysis I employed the total number of trials to criterion that were contained by the whole experiment. Learning Analysis II, made use of a subset of the data in Learning Analysis I. In this case, all trials

during which conformity was still operative were excluded from the measurement such that the data began with the first trial on which there was complete and final cessation of conformity responses for each S.

In contrast to Learning Analysis I, no significant differences were found in the second learning analysis. It would seem that after the cessation of conformity, the independent variables of status and dogmatism had no significant influence over the total number of trials required to learn.

Conformity Analysis I revealed a significant difference in the total number of conformity trials for high dogmatics, high status and 15% misinformation as over and against the other levels of the same respective factors which evinced fewer conformity trials. Parallel to these findings, high dogmatics and high status Ss required more trials to learn than their opposites in Learning Analysis I. Moreover, a comparison of the respective simple effects pertaining to Figures 2 and 6 reveals that for both learning and conformity, dogmatism and status interact with precisely the same significant differences. In Learning Analysis I, the main effect of misinformation was not significant and there was no interaction between dogmatism and misinformation as in Conformity Analysis I.

All evidence considered and in the context of the nonsignificant results of Learning Analysis II, it appears as if, generally speaking, the total number of trials required

by each group to learn, is directly proportional to the total number of trials required by each group to cease copying from the bogus S. Once copying has disappeared, there is no indirect effect exerted on learning by the number of conformity trials or a direct effect by any of the independent variables.

Due to the general nature of the analyses presented thus far, care must be exercised in drawing conclusions and making interpretations. The more precise post-conformity learning analyses yet to be discussed, contradicts the contention supported by the above results, that the independent variables do not influence learning after the cessation of conformity. However, such a contradiction is acceptable as long as the results are considered in the context of the statistical tools used to obtain them.

A four way analysis of variance with repeated measures was performed on the dependent variable of learning. (Learning Analysis III). The data for this measure, like Learning Analysis II, included only the post-conformity trials. The total number of trials to successive criteria was the measure. The same statistical model was employed for the dependent variable of conformity (Conformity Analysis II). The measure was the total number of trials to successive criteria of fewer conformity responses.

The number of correct responses or conformity responses per trial block was not used as a measure of

learning and conformity. In calculating the means for this method, the assumption is made that once the subject has reached the criterion, he will continue to perform at that level if trial blocks are continued. The present data, in fact, showed considerable variability in the number of trial blocks required by different Ss to reach the criterion of 100% learning or 0% conformity. The slower learners and those who conformed most, therefore, contribute strongly to the final portion of the learning and conformity curves respectively. If one S performs in a slightly different way, the whole curve is shortened or lengthened by one or two trial blocks.

As an alternative, a technique stemming from an analysis of learning curves by Melton (1936) was utilized to treat the data. The measure, therefore, was the earliest trial block number when a particular criterion of correct responses or conformity responses was reached. With the Melton method, every S contributes to every mean over all the successive criteria. Thus the means are a more representative measure of central tendency.

Learning Analysis III and Conformity Analysis II will be discussed in view of the hypotheses delineated in Chapter I. Both of the dependent variables will be analysed and interpreted simultaneously because the presence of one of them in the experiment bares an influence on the way in which the other will vary.

It was hypothesized that learning varies inversely

as a function of dogmatism, while conformity varies directly as a function of dogmatism. These complimentary assumptions were supported by the results. After the analytic stage, high and low dogmatic Ss performed approximately the same way for about the first 2/3 of the learning process. For the remaining 1/3 of the process, low dogmatics were significantly faster in their ability to learn. Parallel to this finding, high dogmatics conformed significantly more than low dogmatic Ss across all the successive criteria. This indicates an inverse variance of conformity with learning.

Misinformation interacted with successive criteria of fewer conformity responses. The group that received the least misinformation (15%) conformed significantly more, over successive criteria, than the other two misinformation groups which did not differ significantly from each other. The hypothesis that conformity varies inversely as a function of misinformation was therefore only partially confirmed. The combination of high dogmatics and the 15% misinformation condition displayed the highest degree of conformity as shown in Figure 15.

That learning varies inversely as a function of misinformation was also supported only partially. There was generally no difference between the 50% and 85% misinformation groups over the successive criteria except perhaps over the last two criteria as shown in Figure 5. The 15% group differed significantly from the 85% group and

possibly from the 50% group over the 4th, 6th and 7th successive criteria. Apparently, the more misinformation to which Ss were exposed the slower was their learning, although these Ss did not conform more. This conclusion is best supported by the significant main effect of misinformation which shows the 15% group to be generally superior in learning ability. The results of the interaction of misinformation and successive criteria are too inconsistent and sporadic to warrant anything but a tentative interpretation.

The findings are reminiscent of the results of Ridgley (1966), a study introduced in Chapter I. In his experiment, high dogmatics were singularly inferior to the lows in their ability to learn after the analytic stage. However, they were superior to the lows on the simple learning task in the pre-analytic stage. The amount of conformity behaviour appears to have had a retarding effect on high dogmatics over the last 1/3 of the successive criteria of learning. If there was an inhibitory effect on learning over the first 2/3 of the successive criteria, it affected both the highs and the lows to approximately the same degree until the lows showed significant improvement over the high dogmatic Ss. It can be speculated that the realization by S to cease conforming and search for information independently seems to have had similar differential effects on the dogmatism groups as did the deceptive programme-change in the Ridgley study.

A superficial examination of the number of correct responses per trial block revealed that all experimental groups had obtained and retained some information from passive conformity, since no group had regressed to 0% learning after the decision to continue the task independently. The amount of material retained appeared to be directly proportional to the length of time that the groups conformed and to the percentage of misinformation presented. Although this source of information was not analyzed due to its remoteness from the hypotheses at hand, it provides circumstantial evidence that some positive transfer was carried into the post-analytic stage. It is suggested that if positive transfer was dynamic, then perhaps the phenomenon of negative transfer (interfering responses from pre-analytic trials) was also operative. The evidence also suggests that the more misinformation to which a subject is exposed, the more interfering response tendencies there will be in the post-analytic stage. The high dogmatics attended to the confederates significantly more than the lows and therefore must also have been attending to more misinformation. It follows that the high dogmatics may have had to reconcile more competing response tendencies.

The data supports the interpretations brought forth by Long and Ziller (1965). The significant increase in conformity behaviour among dogmatic Ss may be said to be a method for excluding more active ways of attaining correct information. Conformity in the face of a certain percentage

of incorrect responses is passive behaviour based on the assumption, emotional or otherwise, that the confederate "must be right."

Crutchfield (1955) gives evidence that if the authority or group is correct in one sphere, the conformist will tend to generalize this to other spheres as well. Having been accustomed to the cognitive set of the authorities omniscience and the peer Ss competence both due to a possible carry over from other spheres of life, there may have ensued at the analytic stage a conflict between this set and the intellectual awareness that conformity behaviour must cease if the high dogmatics are to reach criterion.

Negative transfer in the post analytic stage is another way of saying that the dogmatic Ss are still limiting new information intake in order to maintain the old cognitive set and avoid cognitive dissonance. This is in keeping with Rokeach's description of the high dogmatic person as an individual who is resistant to change and who repeatedly employs response patterns that are the result of past learning. Approximately half of the high dogmatic Ss verbally reported that they continued to press the wrong button even though they had done so before to no avail. None of the low dogmatic Ss reported this stereotyping behaviour. Future investigation in this area should concern itself with whether or not high dogmatic Ss make differential use of a high or low status Ss correct and

incorrect responses after the analytic stage. It is known, in this regard, through the interaction of status with dogmatism on the conformity variable, the dogmatics conform to the low status subject although to a significantly lesser degree than to the high status subject. The expectation that there would be no difference between the high and low dogmatics over status was fulfilled.

The significantly shorter time during which the low dogmatics conform, is an indication that these Ss realize comparatively sooner that they cannot use the confederates information. This is tantamount to an early decision that enough information is not available from the confederate and they don't know the answers as yet. Further research is required to discover if low dogmatics use status information in conjunction with their own efforts as a means to their end. Conformity among low dogmatics may simply be just a matter of degree relative to a complete commitment to the confederates on the part of the dogmatic Ss.

Evidently, after the analytic stage, the low dogmatics appear more willing to seek information independently and are willing to run the risk of being wrong temporarily for purposes of achieving the final goal of complete correctness.

Because the low dogmatics reach the analytic stage comparatively earlier, and because the lows may not have been as committed to the confederate as were the highs even

during the pre-analytic stage, a smaller amount of negative transfer is expected. These interfering response tendencies may have been present among low dogmatics during the initial 2/3 of the learning process, but additional experimentation is necessary to discover whether or not this is true. Further research is also desirable to test whether or not negative transfer is the principle cause of the final difference between the two levels of dogmatism.

In the terms of Long and Ziller (1965) the low dogmatics have more of a readiness to search for new information. Responding independently and groping for the correct stimulus light - response button connections is analogous to searching for new bits of information.

The hypothesis that learning varies inversely as a function of status was not supported by the evidence in Learning Analysis III. There were significant differences between the levels of status over only two of the successive criteria (3 and 4). A more meaningful view is to assume that, on the average, the two levels of status do not differ significantly. The conclusion is warranted from the dictates of the insignificant main effect of status. The differential learning facility of high and low dogmatics, being distributed through each level of status, may have had a cancelling effect on one another such that no essential interpretable difference between the status levels could be recognized.

The hypothesis that conformity behaviour varies directly as a function of status of information source was confirmed by a significant main effect of status and a significant interaction of status over successive criteria. The high status group distinguished itself by its conformity behaviour to a significantly more pronounced degree than the low status group over all successive criteria except the first one at the beginning of the experiment. It is notable, that these findings are not parallel to the results concerning the same variables in Learning Analysis III discussed above. However, it can be said, that in general, people appear to attend to a high status figure in preference to a low status figure. Some individuals would do so due to an over evaluation of the high status source of information. Other persons may have attended to the high status subject simply out of personal utility because of the fact that the status figure was more informed about the machine.

In Learning Analysis I, high status Ss took significantly more trials to learn than low status Ss and the high dogmatics required a significantly longer time to learn than low dogmatics under both status conditions. Conformity Analysis I yielded parallel findings that are consistent with the interpretations offered above regarding the general finding that the ability to learn appears to be inversely related to the amount of conformity behaviour.

Additional research is necessary to clarify the somewhat ambiguous findings of this study concerning the status variable over conformity behaviour and learning.

That the dogmatic Ss took a longer time to reach the analytic stage is supportive of Rokeach's theory (1960) that the cognitive system of the high dogmatics is comparatively closed. At the analytic stage, a change from passive acceptance to an active unilateral decision to respond independently was required from people who resist change. The apparent difficulty experienced by the highs in implementing this change would indicate a relative isolation of the pre-analytic belief system from the post analytic disbelief system. The low dogmatics appeared to be more aware of alternatives such that the disbelief system was more available to them psychologically. After this comparatively early termination of the analytic stage the low dogmatics perhaps experienced more of a commitment to the new belief system as indicated by their apparent propensity for fewer competing response tendencies. According to Rokeach, they would have had more differentiated beliefs about the disbelief system and would not therefore have been as resistive to change. The high dogmatics may not have been as committed after the analytic stage, may have clung emotionally to their old pre-analytic beliefs, may have been anxiety ridden because of the forced change thus showing less permeability between belief and disbelief systems as well as lack of differentiation and knowledge

about the disbelief system. The results are clearly in harmony with those of LaScuito and Hartley (1963) who found that open minded Catholics and Jews tended to see material associated with the other religion in the binocular resolution task.

The central-peripheral dimension also appeared to be dynamic. The cognitive system of the high dogmatics may at first have been only open to information from the authoritative source and less so from the non-authoritative source. Even when the highs were compelled by reality to judge the information on its own merits, they found it difficult to make the adjustment. One of the assumptions underlying closed mindedness is that it is a way of coping with anxiety and threat. The ambiguity of responding independently, and the anxiety associated with the resultant cognitive organization may have motivated the highs to conform to even the peer figure for a time in a vain attempt to assuage the anxiety. Once the inconsistency of the confederates responses was realized, the highs chose the lesser of the two ambiguous situations and attempted to perform on their own. The alleged interfering responses or negative transfer, was perhaps a compromise between independent and dependent behaviour resulting from the anxiety of having to chose between these two opposites. It may have been an avoidance-avoidance situation or double bind. In any case, however, it is not likely that the new information was being completely judged on its own merits by the high dogmatics.

Low dogmatics possibly did not feel that they were required to make a choice, but instead employed the confederate for personal utility. Further research is required on this point. Nevertheless, the interaction of status with dogmatism on Conformity Analysis II provided evidence that the lows did not feel differentially different about the two status confederates. Neither status figure was over evaluated and the information was judged on its own merits when the confederates were right or wrong. These interpretations are congruent with the study of McDavid (1959) who studied situation determinants of conformity and discovered that message oriented individuals compromised between yielding and responding independently.

With respect to the time-perspective dimension, the high dogmatics may be said to have displayed a consistent anxiety concerning the future. Conformity appears to have provided an escape for the high dogmatics from independent choice with its concomitant ambiguity and responsibility. The negative cathexis toward the future was maintained and perhaps even strengthened in the post-analytic trials where the highs seemed to be narrowly past-oriented as shown by their increased difficulty in learning. The past was an emotional source of security until it became a threat due to the various degrees of misinformation of the bogus. However, even after the analytic stage, the past still seemed to contain some degree of positive attraction that resulted in this apparent compromise formation. The data

certainly alludes to the lack of present-oriented behaviour described by Rokeach (1960).

It is appropriate at this point to address a few words to anxiety as a construct related to dogmatism. Anxiety is obviously interwoven inextricably through most of these intermediate variables described by Rokeach (1960). Ridgley (1966) provided categorical evidence that high dogmatics even learn faster than lows in a simple learning task. However, when the programme was changed, they behaved less adequately. Once the conforming ceased, the high dogmatics were faced with a more complex task where their anxiety was no longer facilitative but inhibitory. The feeling of aloneness, isolation, helplessness, and uncertainty about the future, as psychic realities tapped by the D Scale, may have been operating during the experiment. Some of the high dogmatics expressed apprehension and concern at the outset of the experiment and pressed for structure and support from E or the high status figure before and during the time for task instructions. The new and strange appearance of buttons and lights on a panel often provokes anxiety responses in Ss before any learning experiment. If anxiety is a chronic dispositional characteristic of high dogmatics, they will have a tendency to appraise any situation as threatening (Lazarus, 1966).

In line with the findings of LaScuito and Hartley (1963) and in contradiction to the findings of Rokeach et al.

(1955) there is a difference between high and low dogmatic Ss in their ability to eliminate old beliefs. Rokeach et al. (1955), on the basis of the Doodlebug experiments maintained that no difference existed. Ridgley (1966) found that there was a difference, but that the difference lay in a direction entirely unexpected. The high dogmatics reached the analytic stage first. Ridgley accounted for his findings by pointing out that in his study, high dogmatic subjects may have perceived E as having control over the learning situation and due to the paranoiac tendencies postulated by Rokeach (1960) managed to suspect the change in programme earlier than did the lows. The nature of the experimental task in the present study, like the one by Adams and Vidulich (1962) was not one where Ss were dependent on E for their learning because of a possible change in programme. Ss were required to resolve the analytic stage themselves independently of any variables interjected by E, just as in the Doodlebug experiments. The present study, therefore, is contrary to both Rokeach et al. (1955) and Ridgley (1966) in that high dogmatics took longer to eliminate old beliefs. These contradictory results appear to challenge Rokeach's contention, concerning the analytic stage. However, the difference between the experiment and the Ridgley study can be assumed to be mostly a result of an artifact of two different experimental situations rather than a construct controversy. Rokeach clearly over-generalized with respect to the applicability of his findings on the analytic stage to all

situations.

Rokeach, McGoveney and Denney (1955) asserted that before a synthesis of new bits of information can occur, old and often contradictory beliefs must be eliminated. The present investigations supports this assumption. In light of the discussion thus far on negative transfer, high dogmatics would appear to have less synthesizing ability than low dogmatic Ss. The isolation between the belief and disbelief systems precludes integration or the synthesizing process since the latter hinges on the discovery and acceptance of contradictions. The greater isolation may arise from the belief that E as an authority would not give them a problem with no solution. Persons with open systems are expected by virtue of the greater intercommunication among beliefs to be less dependent on authority and thus see through the experimental contradiction.

The findings of the present investigation, although they are more limited in scope support the interpretations of the classical Crutchfield study (1955). The pressure to conform is greater or smaller depending upon whether or not the individual views the confederate as more competent than himself. In both the conformity analyses, the interactions of status and dogmatism are mutually supportive. The high dogmatics may be said to view both status figures as competent, but the highs more so than the lows. The low dogmatics do not see either status source as being more competent than themselves. In the case of the low status

confederate, there is a possibility that there has been an uncontrolled attribution of status from E because of a perceived association of the two by high dogmatic Ss during the time E introduced the bogus to the group. A more carefully controlled study is needed to investigate this possibility.

The dogmatic Ss may feel threatened by the possibility of not learning the programme. There may have been a fear of reprisal in the form of humiliation since all Ss were told that the status figure could see how they were responding. The desire to avoid humiliation and receive recognition may have been a motivating force for the high dogmatics to seek correctness in the simplest and most secure fashion. Crutchfield (1955) has observed that silent reproach, silent contempt or silent approval on the part of the group or authority, whether present or merely imagined by the individual, can be a crushing force on him. The low dogmatics do not appear to be influenced, at least to the same magnitude by such psychic dispositions. They appear to be task motivated rather than status and misinformation oriented.

Crutchfield (1955) found that the affirmation of the authority or group in one sphere regarding the correctness of a response, can produce a somewhat generalized readiness to conform to the group in other spheres. This was perhaps part of the reason for the long period of conformity for the dogmatic Ss, and the differential

conformity levels of these Ss due to status and misinformation.

The interaction of misinformation and dogmatism in both conformity analyses may be interpreted in the same vain. In general, throughout the experiment, Ss conformed more when there was less misinformation. There was no difference among Ss when the misinformation level rose to a high of 50% and 85%. These results partially supported the findings of Cervin (1964) who found a significant differentiation among two prestige levels for all three quantities of misinformation. The amount of misinformation in the Cervin study (0% 50% 100%) was more extreme and may account for the apparent contradiction as contrasted with the present study. More research is required on the G.L.A. if these contradictions are to be resolved.

The interaction of status and misinformation found in Conformity Analysis II does not offer a unique interpretation. It simply means that high and low dogmatic Ss combined, tend to place more credence in a high status figure when he is mostly correct than when he is only half or most incorrect. On the whole, not as much faith is put in low status sources of information.

Certain modes of cognitive resolution have occurred in this experiment and similar social experiments. If the individual is disposed to conform, he may resolve that his judgment is faulty, or that he has a poor memory for this type of work. Some high dogmatic Ss mentioned

that they followed the bogus Ss for a while until they became used to the experiment but it was alleged that they did not copy "for long".

The high dogmatics, instead of blaming themselves, blamed the confederates, charging that they were deliberately trying to fool them or that they gave their answers too hastily. This type of cognitive resolution provides a path for independent behaviour that carries with it a concomitant freedom from social pressure.

A favourite method for avoiding the discrepancy among the confederates responses was to charge that "the green light was not always working" or that "the white light and response buttons were not always associated" or there was a "mistake in the electrical connections." Sometimes it was said that the white lights did not always appear. Aside from the fact that fresh light bulbs had been put into the panels before the experiment, E checked over the machine carefully after every session in which these allegations had been made. Everything was found to be in perfect working order. No low dogmatics reported that the machine was faulty.

A few remarks are necessary concerning the potency of research in this area. The most adequate research tends to emerge from those studies that correlate scales with various behavioural manifestations in a controlled situation. Mere intercorrelations between scales seem to fast enter the vicious circle of validity and counter

validity. When questionnaires are used with behavioural data, the results of course, may be taken more seriously when the scale in question is reliable and valid.

The F Scale has behind it a considerable amount of work, clinical observation and a very elaborate and all inclusive theory of an extremely high quality. The D Scale is based on the more limited cognitive theory which is also of a fine and applicable nature. However, the F Scale has produced comparatively poor research methodologically because the reliability and validity of the scale varies from sample to sample. Perhaps the F Scale unlike the D Scale, attempts to measure too wide an area with too small an instrument.

The D Scale, for the most part, has been found to be consistently reliable and valid throughout the literature. The present research is a testimony to the ability of the D Scale to discriminate relatively poor learners from relatively good ones and conformists from independents. On the whole, this study offers additional substance to Rokeach's assumption that the constructs underlying the D Scale are of broad situational significance.

CHAPTER V

SUMMARY AND CONCLUSION

This study was an effort to investigate the effect of dogmatism, misinformation, and status of information source on conformity behaviour and instrumental learning. The theories of Rokeach generated the following hypotheses.

In an instrumental learning task

I Learning varies inversely as a function of dogmatism.

II Learning varies inversely as a function of status of information source.

III Learning varies inversely as a function of misinformation.

IV Conformity behaviour varies directly as a function of dogmatism.

V Conformity behaviour varies directly as a function of status of information source.

VI Conformity behaviour varies inversely as a function of misinformation.

The experimental sample consisted of 30 high and 30 low dogmatic Ss who were exposed to a non-verbal paired-associate learning task. They could respond on their own or could mimic the responses of one of the two bogus Ss who were either high or low in status and who were incorrect

15%, 50% or 85% of the time. The trial at which Ss realized that they could not achieve perfect learning by conforming was defined as the analytic stage.

In the experimental procedure, Ss were required to learn the one to one paired associations between six stimulus lights and six response buttons. Ss indicated their pairings by pressing and releasing one of the response buttons some time after the onset of the white lights. The bogus Ss were allegedly indicating, to Ss, their paired associations to the same programme by communicating their responses via one of the 6 orange lights on Ss panel i.e. if orange light 1 appeared, then the bogus Ss allegedly depressed response button 1. The orange lights always appeared 4 seconds after the onset of the white lights so that Ss could choose when they would like to respond. Conformity was defined as any subject response that occurred after the orange light and in imitation of it. A green light was employed to indicate a correct response.

In general, the total number of trials required by each group to learn is directly proportional to the total number of trials required by each group to cease copying from the bogus S. Once copying disappeared there was no indirect effect exerted on learning by the number of conformity trials or a direct effect by any of the independent variables. Caution must be exercised in interpreting these results since performance measured

by trials to successive criteria after the analytic stage yielded significant differences.

Trials to successive criteria after the analytic stage as a measure of learning indicates that learning varies inversely as a function of dogmatism ($P. .01$). The 15% misinformation group was also found to differ significantly from the 50% and 85% misinformation levels. These findings were discussed in terms of negative transfer and the high dogmatics resistance to change. Hypothesis II was confirmed by the general analysis using totals and only partially confirmed using trials to successive criteria. Caution was advised in interpreting these contradictory findings.

All analyses of variance supported the hypothesis that conformity behaviour varies directly as a function of dogmatism ($P. .01$). Hypotheses V was also born out by all the analyses. In general, the 15% misinformation group conformed significantly more than the 50% and the 85% misinformation groups, neither of which differed among themselves. The hypothesis that conformity behaviour varies inversely as a function of misinformation was, therefore partially born out. These findings were discussed in the context of Rokeach's theory and the findings of Crutchfield. Because of anxiety due to a threat situation and because of a generalized set to conform to the confederates, high dogmatics yielded more often than low dogmatic Ss.

In conclusion, it was advised that more research be done correlating the D Scale with Behavioural data. The present study was found to have given additional support to the dogmatism constructs.

APPENDIX A

Dogmatism Scale, MMPI Lie Scale and MMPI Buffer Items with
Subject Instructions in the Form for Administration to
Subjects

DATE OF BIRTH _____
Day Month Year

CITY OF BIRTH _____ STATE OR PROVINCE OF BIRTH _____

SEX _____ RACE _____ RELIGION _____

POLITICAL AFFILIATION _____

** Dogmatism Items

* Lie Scale Items

FORM E

- *1. _____ Once in a while I put off until tomorrow what I ought to do today.
2. _____ I like to read newspaper articles on crime.
- **3. _____ There are a number of people I have come to hate because of the things they stand for.
4. _____ Policemen are usually honest.
5. _____ I am about as able to work as I ever was.
- **6. _____ To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.
- *7. _____ When I take a new job, I like to be tipped off on who should be gotten next to.
8. _____ I prefer to pass by school friends, or people I know but have not seen for a long time, unless they speak to me first.
- **9. _____ In times like these, a person must be pretty selfish if he considers primarily his own happiness.
10. _____ I seldom worry about my health.
- *11. _____ I gossip a little at times.
- **12. _____ Fundamentally, the world we live in is a pretty lonesome place.
13. _____ If I were an artist I would like to draw flowers.
14. _____ I am in just as good physical health as most of my friends.
- **15. _____ Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.
- *16. _____ I have often had to take orders from someone who did not know as much as I did.
- *17. _____ Once in a while I think of things too bad to talk about.

- **18. _____ It is only natural that a person would have a much better acquaintance with ideas he believes in than with ideas he opposes.
19. _____ I enjoy reading love stories.
20. _____ I do many things which I regret afterwards (I regret things more or more often than others seen to).
- **21. _____ In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.
22. _____ My feelings are not easily hurt.
23. _____ The man who provides temptation by leaving valuable property unprotected is about as much to blame for its theft as the one who steals it.
- **24. _____ Most people just don't give a "damn" for others.
25. _____ I think I would like the kind of work a forest ranger does.
26. _____ Something exciting will almost always pull me out of it when I am feeling low.
- **27. _____ In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.
- *28. _____ I like to know some important people because it makes me feel important.
29. _____ It takes a lot of argument to convince most people of truth.
- **30. _____ While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.
31. _____ I have been quite independent and free from family rule.
32. _____ I have very few quarrels with members of my family.
- **33. _____ The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.

34. _____ It is great to be living in these times when so much is going on.
35. _____ I have met problems so full of possibilities that I have been unable to make up my mind about them.
- **36. _____ It is only natural for a person to be rather fearful of the future.
- *37. _____ My table manners are not quite as good at home as when I am out in company.
38. _____ In school I was sometimes sent to the principal for cutting up.
- **39. _____ A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person.
40. _____ I think that I feel more intensely than most people do.
41. _____ At times my thoughts have raced ahead faster than I could speak them.
- **42. _____ It is only when a person devotes himself to an ideal or cause that life becomes meaningful.
43. _____ Any man who is able and willing to work hard has a good chance of succeeding.
44. _____ When I was a child, I belonged to a crowd or gang that tried to stick together through thick and thin.
- **45. _____ The main thing in life is for a person to want to do something important.
46. _____ I love to go to dances.
47. _____ It makes me impatient to have people ask my advice or otherwise interrupt me when I am working on something important.
- **48. _____ If given the chance I would do something of great benefit to the world.
49. _____ I am afraid when I look down from a high place.
50. _____ When I leave home I do not worry about whether the door is locked and the windows closed.

- **51. _____ A group which tolerates too much differences of opinion among its own members cannot exist for long.
52. _____ I have no dread of going into a room by myself where other people have already gathered and are talking.
53. _____ It makes me uncomfortable to put on a stunt at a party even when others are doing the same sort of things.
- **54. _____ When it comes to differences of opinion in religion we must be careful not to compromise with those who believe differently from the way we do.
55. _____ I never worry about my looks.
56. _____ I like to visit places where I have never been before.
- **57. _____ In the history of mankind there have probably been just a handful of really great thinkers.
58. _____ I should like to belong to several clubs or lodges.
59. _____ I am very religious (more than most people).
- **60. _____ There is so much to be done and so little time to do it in.
- *61. _____ I do not always tell the truth.
62. _____ I think I would like the work of a librarian.
- **63. _____ The United States and Russia have just about nothing in common.
- *64. _____ I would rather win than lose in a game.
65. _____ My parents and family find more fault with me than they should.
- **66. _____ Man on his own is a helpless and miserable creature.
67. _____ I usually expect to succeed in things I do.
68. _____ I have difficulty in starting to do things.

- **69. _____ Of all the different philosophies which exist in this world there is probably only one which is correct.
- *70. _____ At times I feel like swearing.
71. _____ When in a group of people I have trouble thinking of the right things to talk about.
- **72. _____ My blood boils whenever a person stubbornly refuses to admit he's wrong.
73. _____ I find it hard to make talk when I meet new people.
74. _____ If I were a reporter I would very much like to report sporting news.
- **75. _____ A man who does not believe in some great cause has not really lived.
- *76. _____ Once in a while I laugh at a dirty joke.
- *77. _____ Sometimes when I am not feeling well I am cross.
- **78. _____ I'd like it if I could find someone who would tell me how to solve my personal problems.
79. _____ I seem to make friends about as quickly as others do.
- *80. _____ I do not like everyone I know.
- **81. _____ There are two kinds of people in this world: those who are for truth and those who are against the truth.
82. _____ My mother or father often made me obey even when I thought that it was unreasonable.
83. _____ I usually have to stop and think before I act even in trifling matters.
- **84. _____ It is better to be a dead hero than to be a live coward.
85. _____ I have no enemies who really wish to harm me.
- *86. _____ Sometimes at elections I vote for men about whom I know very little.
- **87. _____ Once I get wound up in a heated discussion I just can't stop.

88. _____ I have sometimes stayed away from another person because I feared doing or saying something that I might regret afterwards.
89. _____ I tend to be interested in several different hobbies rather than to stick to one of them for a long time.
- **90. _____ The worst crime a person could commit is to attack publicly the people who believe in the same thing he does.
91. _____ I get angry sometimes.
92. _____ At parties I am more likely to sit by myself or with just one other person than to join in with the crowd.
- **93. _____ In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.
94. _____ My plans have frequently seemed so full of difficulties that I have had to give them up.
95. _____ I have often felt badly over being misunderstood when trying to keep someone from making a mistake.
- **96. _____ In a heated discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.
97. _____ I used to like hopscotch.
98. _____ Often, even though everything is going fine for me, I feel that I don't care about anything.
- **99. _____ A person who thinks primarily of his own happiness is beneath contempt.
- *100. _____ If I could get into a movie without paying and be sure I was not seen I would probably do it.
101. _____ People have often misunderstood my intentions when I was trying to put them right and be helpful.
- **102. _____ Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

103. _____ At times I have worn myself out by undertaking too much.
104. _____ If given the chance I would make a good leader of people.
- **105. _____ Most people just don't know what's good for them.
106. _____ I enjoy detective or mystery stories.
107. _____ At times I have very much wanted to leave home.
- **108. _____ The present is all too often full of unhappiness. It is only the future that counts.
109. _____ I have had periods of days, weeks, or months when I couldn't take care of things because I couldn't "get going."
110. _____ I do not read every editorial in the newspaper every day.
- **111. _____ Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.
112. _____ I think a great many people exaggerate their misfortunes in order to gain the sympathy and help of others.
113. _____ There never was a time in my life when I liked to play with dolls.
- **114. _____ In the long run the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.
115. _____ I like poetry.
116. _____ These days I find it hard not to give up hope of amounting to something.
- **117. _____ It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.
118. _____ Everything tastes the same.
119. _____ I like to go to parties and other affairs where there is lots of loud fun.

**120. _____ If a man is to accomplish his mission in life
it is sometimes necessary to gamble "all or
nothing at all."

INSTRUCTIONS

The following is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your personal opinion. We have tried to cover many different and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others; whether you agree or disagree with any statement, you can be sure that many people feel the same as you do.

Mark each statement in the left margin according to how much you agree or disagree with it. Please mark every one. Write +1, +2, +3, or -1, -2, -3, depending on how you feel in each case.

+1: I AGREE A LITTLE

-1: I DISAGREE A LITTLE

+2: I AGREE ON THE WHOLE

-2: I DISAGREE ON THE WHOLE

+3: I AGREE VERY MUCH

-3: I DISAGREE VERY MUCH

EXAMPLES:

1. ____ I walk to school every morning.

2. ____ It is sunny out today.

APPENDIX B

INSTRUCTIONS FOR EXPERIMENTAL TASK

I would like to explain how this experiment works:

1. Each response button is electrically connected with a different white light.
2. Your task is to learn the correct response button-white light connections.
3. You are to indicate your response to each white light by firmly depressing and releasing one (1) and only one response button. Please respond to each white light while it is on as you will have 8 seconds.
4. Mr. Ladd (Tom Burns) will be following the same procedure as you. Therefore, when an orange light comes on after a white light, this indicates to you the response button that Mr. Ladd (Tom Burns) has chosen to press. If, for example, white light #2 comes on and then the orange light above response button #5 comes on, this indicates that Mr. Ladd (Tom Burns) has chosen to press response button #5. This procedure allows you to keep in touch with Mr. Ladd (Tom Burns). To make it easier, Mr. Ladd's (Tom's) responses are on delayed tape so that his responses will appear on your panel always 4 seconds after the white light comes on. Similarly, Mr. Ladd will be able to be in contact with

you.

5. When your response is correct, your green success light will come on. When your response is incorrect you will not receive a green light.
6. You may respond anytime when the white light is on and press any button in order to make a correct response.
7. Try to respond as correctly as you can, and please try not to communicate verbally with each other during the procedure.

APPENDIX C

RANDOM ORDER OF PRESENTATION OF THIRTY-SIX WHITE LIGHTS

1.	6	19.	5
2.	3	20.	6
3.	2	21.	1
4.	1	22.	3
5.	5	23.	4
6.	4	24.	2
<hr/>		<hr/>	
7.	3	25.	5
8.	4	26.	4
9.	1	27.	1
10.	2	28.	3
11.	5	29.	6
12.	6	30.	2
<hr/>		<hr/>	
13.	1	31.	6
14.	3	32.	5
15.	4	33.	1
16.	6	34.	3
17.	5	35.	2
18.	2	36.	4
<hr/>		<hr/>	

APPENDIX D

WHITE LIGHT-RESPONSE BUTTON CONNECTIONS USED IN THE TWENTY-NINE EXPERIMENTAL SESSIONS

No.	White Light	Resp. Button	No.	White Light	Resp. Button	No.	White Light	Resp. Button
1.	1	6	6.	1	5	11.	1	2
	2	3		2	6		2	4
	3	5		3	1		3	6
	4	2		4	3		4	5
	5	1		5	2		5	3
	6	4		6	4		6	1
-----			-----			-----		
2.	1	5	7.	1	5	12.	1	4
	2	3		2	4		2	6
	3	1		3	6		3	1
	4	6		4	2		4	3
	5	2		5	1		5	5
	6	4		6	3		6	2
-----			-----			-----		
3.	1	1	8.	1	6	13.	1	5
	2	4		2	5		2	3
	3	6		3	2		3	2
	4	3		4	1		4	4
	5	5		5	4		5	6
	6	2		6	3		6	1
-----			-----			-----		
4.	1	2	9.	1	3	14.	1	3
	2	1		2	5		2	4
	3	3		3	1		3	6
	4	6		4	2		4	1
	5	4		5	4		5	2
	6	5		6	6		6	5
-----			-----			-----		
5.	1	1	10.	1	1	15.	1	5
	2	2		2	2		2	6
	3	5		3	4		3	4
	4	4		4	6		4	1
	5	6		5	5		5	3
	6	3		6	3		6	2
-----			-----			-----		

No.	White Light	Resp. Button	No.	White Light	Resp. Button	No.	White Light	Resp. Button
16.	1	3	21.	1	2	26.	1	6
	2	2		2	1		2	4
	3	6		3	6		3	1
	4	5		4	5		4	5
	5	4		5	3		5	2
	6	1		6	4		6	3
-----			-----			-----		
17.	1	5	22.	1	4	27.	1	4
	2	4		2	6		2	6
	3	6		3	1		3	1
	4	3		4	3		4	3
	5	1		5	2		5	2
	6	2		6	5		6	5
-----			-----			-----		
18.	1	2	23.	1	5	28.	1	4
	2	3		2	4		2	6
	3	6		3	6		3	1
	4	5		4	3		4	3
	5	4		5	1		5	2
	6	1		6	2		6	5
-----			-----			-----		
19.	1	4	24.	1	2	29.	1	5
	2	5		2	3		2	2
	3	6		3	6		3	6
	4	3		4	4		4	1
	5	2		5	1		5	3
	6	1		6	5		6	4
-----			-----			-----		
20.	1	1	25.	1	5			
	2	5		2	2			
	3	4		3	1			
	4	3		4	6			
	5	6		5	3			
	6	2		6	4			
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